WATER RESOURCES OF THE UPPER HENRYS FORK BASIN IN EASTERN IDAHO

Idaho Department of Water Resources
Water Information Bulletin No. 46
May 1978

Henrys Fork of the Snake River drops 65 feet over Lower Mesa Falls near Ashton, Idaho (Division of Tourism and Industrial Development Photo)

WATER INFORMATION BULLETIN NO. 46

WATER RESOURCES OF THE UPPER HENRYS FORK BASIN IN EASTERN IDAHO

By

R. L. Whitehead

Prepared by the U.S. Geological Survey
in cooperation with the
Idaho Department of Water Resources

May 1978

CONVERSION FACTORS

For the convenience of those who prefer to use International System (SI) units rather than English units, the conversion factors for terms used in this report are listed below. Chemical data for concentrations are given only in milligrams per liter (mg/L) or micrograms per liter (μg/L). These values are (within the range of values presented) numerically equal to values expressed in parts per million, or parts per billion, respectively. Specific conductance is expressed as micromhos per centimeter at 25 degrees Celsius (μmhos).

Multiply English units	By	To obtain SI units
	Length	
inches (in)	25.40	millimeters (mm)
feet (ft)	0.3048	meters (m)
miles (mi)	1.609	kilometers (km)
	Area	
acres	4047	square meters (m^2)
square miles (mi^2)	2.590	square kilometers (km^2)
	Flow	
cubic feet per second (ft^3/s)	0.02832	cubic meters per second (m^3/s)
gallons per minute (gal/min)	.06309	liters per second (L/s)
	Transmissivity	
feet squared per day (ft^2/d)	0.0929	meters squared per day (m^2/d)
	Volume	
acre-feet (acre-ft)	1233	cubic meters (m^3)

Temperature-Conversion Table

Conversion of degrees Celsius (°C) to degrees Fahrenheit (°F) is based on the equation, $°F = (1.8)(°C) + 32$. Temperatures in °F are rounded to the nearest degree. Underscored equivalent temperatures are exact equivalents.

°C	°F	°C	°F	°C	°F
<u>0</u>	<u>32</u>	<u>10</u>	<u>50</u>	<u>20</u>	<u>68</u>
+1	34	11	52	21	70
2	36	12	54	22	72
3	37	13	55	23	73
4	39	14	57	24	75
<u>5</u>	<u>41</u>	<u>15</u>	<u>59</u>	<u>25</u>	<u>77</u>
6	43	16	61	41	106
7	45	17	63		
8	46	18	64		
9	48	19	66		

TABLE OF CONTENTS

ILLUSTRATIONS

TABLES

BASIC-DATA TABLES

ABSTRACT

Upper Henrys Fork basin, comprising 1,070 square miles in eastern Idaho and a small area in western Wyoming, has a permanent population of about 1,500. Ashton is the major population center. Because the area attracts thousands of summer vacationers and winter sports enthusiasts, related land- and water-use pressures are increasing.

Surface water is stored in Henrys Lake and Island Park Reservoir for irrigation outside the basin. Ground water is used chiefly for municipal, domestic, and stock supplies.

Volcanic rocks and alluvium compose most of the aquifer materials. Permeable volcanic rocks in the eastern part of the basin greatly influence water yields and ground-water movement between subbasins. Data suggest that movement across the basin boundary is minimal.

Mean annual precipitation on the basin is estimated to be about 35 inches, of which about 50 percent contributes to the mean annual discharge in Henrys Fork near Ashton, which is 1,441 cubic feet per second, or about 18 inches. This represents the discharge from the basin, except for that lost to evapotranspiration.

Annual mean discharge of streams generally varies directly with the annual mean precipitation.

Water quality in the basin is generally excellent. Although, in the Ashton area and in areas of intermittent high usage by man, some deterioration of the quality is evident. Values for specific conductance range from less than 100 to about 300 micromhos per centimeter at 25°C, except in the Ashton area, where as much as 800 micromhos was measured in the ground water.

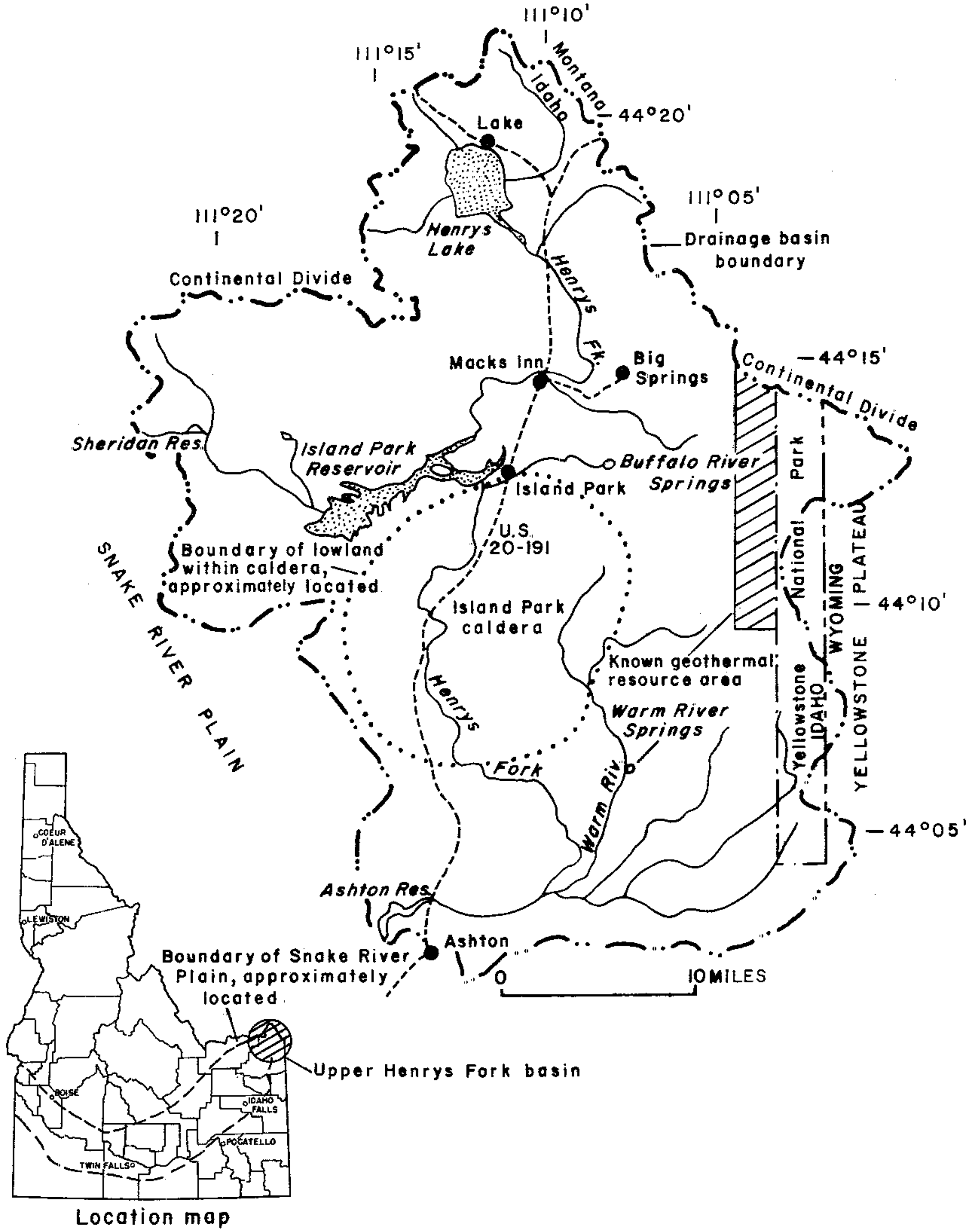


FIGURE 1. Maps of Idaho and the upper Henrys Fork basin.

INTRODUCTION

The upper Henrys Fork basin is sparsely populated; thus, related land- and water-use pressures are generally minimal. However, because of its recreational opportunities, scenic vistas, and proximity to Yellowstone National Park (fig. 1), the area attracts thousands of vacationers during the summer and sports enthusiasts (including snowmobilers) during the winter. Thus, the related pressures are increasing.

Present high-use areas include summer-home developments along selected reaches of Henrys Fork and a few of its main tributaries and the farming community near Ashton (population about 1,200), the major population center. In 1970, the total permanent population of the basin was estimated to be about 1,500 (Forsgren, Perkins and Associates, 1971). The annual transient population has not been estimated, but it is substantial.

Purpose and Scope

The purpose of this report is to provide managers, planners, developers, and water users with hydrologic information needed to assist in planning the development and management of land and water resources in the basin. To fulfill this need, the U.S. Geological Survey, in cooperation with the Idaho Department of Water Resources, began a 2-year hydrologic study of the basin early in 1974. Prior to this, a comprehensive study of the water resources had not been made. Three main objectives of the study were: (1) To describe on a reconnaissance level the general availability, distribution, quality, and uses of the water resources of the basin; (2) to compile a data base from which effects of future development can be gaged; and (3) to make suggestions for establishing networks to monitor surface-water flows, water-level fluctuations, and water-quality changes.

To fulfill these objectives, a network of collection sites was established to collect data on ground water, surface water, and quality of water. Data were collected from 88 sites on 47 streams, 15 sites on 5 lakes or reservoirs, 22 springs, and 209 wells. At approximately monthly intervals, discharge and water-level measurements were made at 6 of the stream sites and 44 of the wells and at previously established gaging stations and observation wells. Periodic measurements of low flows were made at 48 of the stream sites. Water samples were collected for quality determinations at 77 surface-water sites and 44 ground-water sites. Data from previous studies were assimilated.

The scope of the report is comprehensive in that all the basic facets of water resources are considered in this study.

The Study Area

The upper Henrys Fork basin comprises 1,070 mi^2, of which 30 mi^2 are in western Wyoming and the remainder in eastern Idaho. About 60 mi^2 of the basin are within the boundaries of Yellowstone National Park.

The basin boundaries are topographically controlled. The northern boundary follows the high mountainous crest of the Continental Divide; the eastern boundary crosses the relatively smooth-surfaced Yellowstone Plateau; and the southern and western boundaries are at the northeastern end of the Snake River Plain. The basin occupies the northern part of Fremont County and a small part of eastern Clark County in Idaho. Data for the study were not collected in Wyoming.

Altitudes range from about 5,200 ft on the Snake River Plain near Ashton to more than 10,000 ft on some of the peaks along the Continental Divide. The mean altitude of the basin is about 6,700 ft.

Henrys Fork, the main stream, originates at the outlet of Henrys Lake in the northern part of the basin. The lake, originally shallow and natural, was expanded in 1922 by construction of a low dam. From the lake, the river flows southward and westward to Island Park Reservoir. Island Park Dam was constructed in 1936 and the reservoir was first filled in 1939.

Henrys Fork emerges from Island Park Reservoir and flows southward for about 14 mi to near Swan Lake. It then flows southeastward through a deep, scenic canyon and over Upper and Lower Mesa Falls to its confluence with Warm River. Henrys Fork then flows southward and westward toward Ashton, where it leaves the upper basin. The length of the river is 73 mi from Henrys Lake to Ashton.

The basin has one of the coldest climates in Idaho. Mean annual temperatures recorded at two relatively long-term climatological stations at Ashton and Island Park Dam are 5.3° and 2.3° C, respectively (fig. 2). Freeze-free periods (based on a 10-percent chance of temperatures being lower than -2.2° C) at these stations are 90 and 45 days, respectively (Stevlingson and Everson, 1968).

Annual precipitation, much of which falls as snow, averages 16.9 and 28.9 in at Ashton and Island Park Dam, respectively (fig. 2). Annual basinwide precipitation is estimated to average about 35 in.

Previous Studies

Little previous hydrologic information is available. Reports by Crosthwaite, Mundorff, and Walker (1970); Mundorff, Crosthwaite, and Kilburn (1964); Stearns, Crandall, and Steward (1936 and 1938); Stearns, Bryan, and Crandall (1939); and unpublished reports by Stearns (1924), and Mansfield (1932), contain some hydrologic data on parts of the study area. Reports by Witkind (1972, 1975, and 1976); Hamilton (1965); Ross and Forrester (1947); and Peterson and Witkind (1975); contain geologic data for a large part of the study area.

Additional data, generally compilations of preexisting information, are presented in reports by Forsgren, Perkins and Associates (1971), and Holte and others (1973). A report by the Idaho Fish and Game Department (1969) contains information on suggested minimum streamflows in part of the area. A report by Speth and others (written commun.,

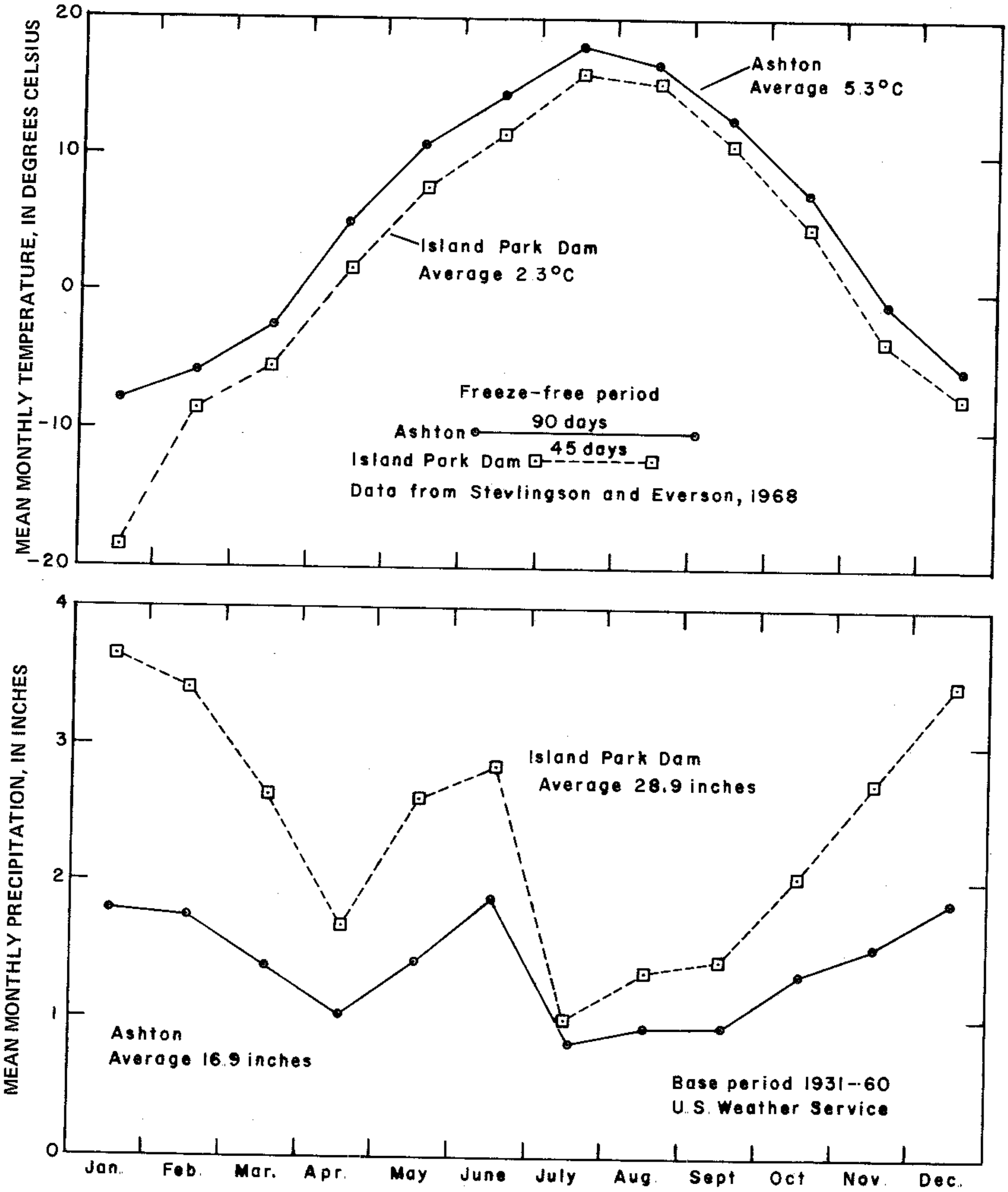


FIGURE 2. Mean monthly temperature and precipitation at Ashton and Island Park Dam.

1971), contains data on water-quality-sampling programs in selected parts of the study area. Also, an unpublished report by the U.S. Environmental Protection Agency (written commun., 1973) gives some information on water quality. Annual watermaster reports for Water District 1 contain data on streamflow and reservoir storage.

Previously, staff gages provided data on water-surface altitudes for Henrys Lake and Island Park Reservoir, and stream-gaging stations were operated downstream from each. A third gaging station was on Henrys Fork below Ashton Reservoir. Also, ground-water levels in three wells in and near the basin were measured annually or semiannually since 1969. Data for the above sites are published annually in U.S. Geological Survey Water-Data Reports for Idaho and in selected U.S. Geological Survey Water-Supply Papers.

Acknowledgments

The information and assistance of the many individuals, businesses, and agencies that aided the study are greatly appreciated. They include area residents, well owners, well-drilling companies, the Fremont County health agent, personnel of Ricks College, the consulting firm of Forsgren, Perkins and Associates, U.S. Forest Service, U.S. Soil Conservation Service, and the U.S. Bureau of Reclamation.

Gaging-Station-Numbering System

Gaging stations and partial-record stations in Idaho are assigned numbers in downstream order in accordance with the permanent numbering system used by the Geological Survey. Numbers are assigned in a downstream direction along the main stream, and stations on tributaries between main-stream stations are numbered in the order they enter the main stream. A similar order is followed on other ranks of tributaries. The complete 8-digit number, 13046000, for example, is used for the station Henrys Fork near Ashton. It includes the part number "13," indicating that Henrys Fork is in the Snake River basin, plus a 6-digit station number.

Well- and Spring-Numbering System

The well- and spring-numbering system used by the Geological Survey in Idaho indicates the location of wells or springs within the official rectangular subdivision of the public lands, with reference to the Boise base line and meridian. The first two segments of the number designate the township and range. The third segment gives the section number, followed by three letters and a numeral, which indicate the quarter section, the 40-acre tract, the 10-acre tract, and the serial number of the well within the tract, respectively. Quarter sections are lettered a, b, c, and d in counterclockwise order from the northeast quarter of each section (fig. 3). Within the quarter sections, 40-acre and 10-acre tracts are lettered in the same manner. Well 9N-42E-34dda1 is in the NE¼SE¼SE¼, sec. 34, T. 9 N., R. 42 E., and was the first well inventoried in that tract. Springs are designated by the letter "S" following the last numeral. Some springs are numbered according to the gaging-station-numbering system.

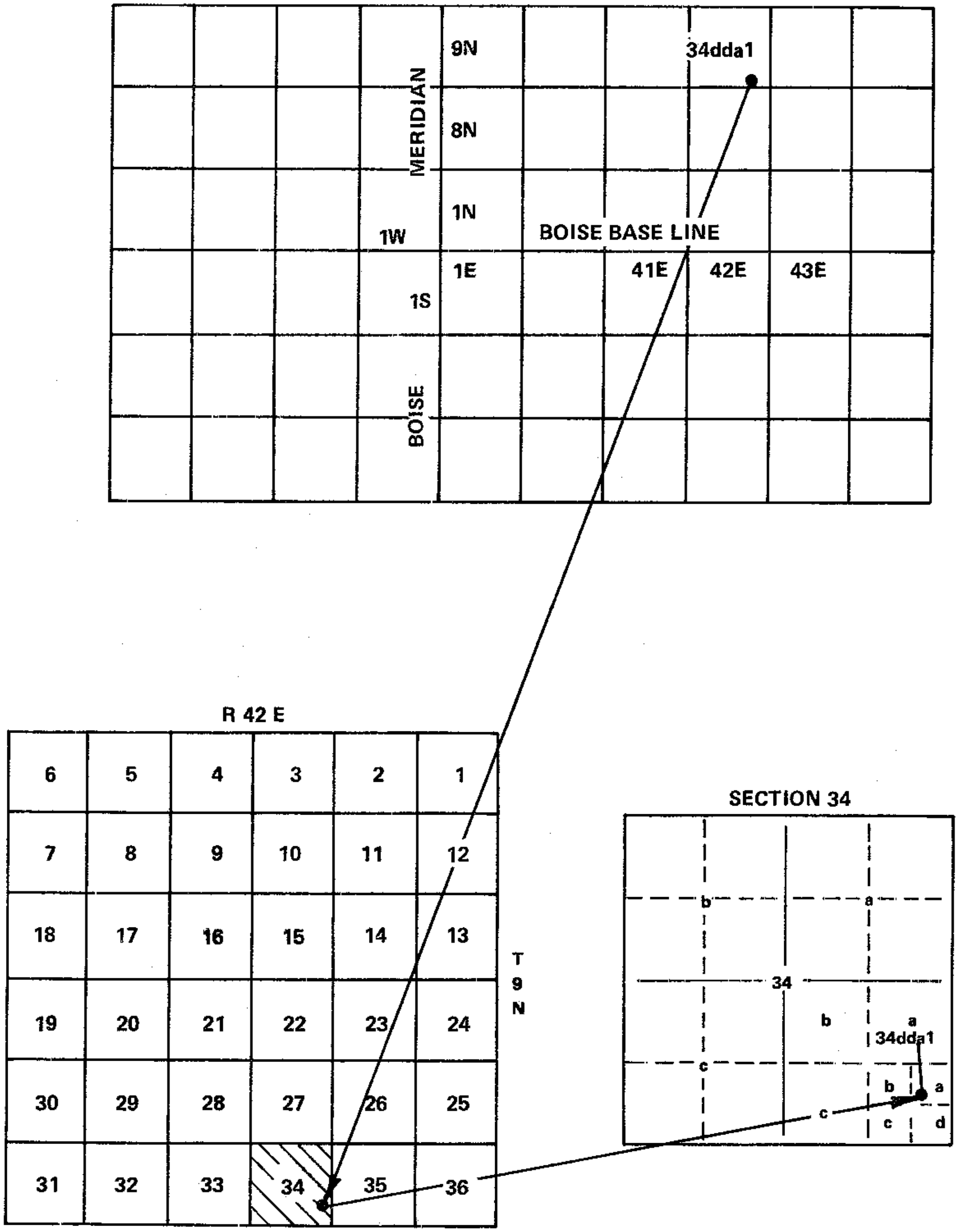


FIGURE 3. Well- and spring-numbering system (using well 9N-42E-34ddal).

TABLE 1
DESCRIPTION AND WATER-BEARING CHARACTERISTICS OF GEOLOGIC UNITS IN THE UPPER HENRYS FORK BASIN
(Modified from Witkind, 1972, and Hamilton, 1965)

Era	Period	Epoch	Rock unit	Description	Water-bearing characteristics
Cenozoic	Quaternary	Holocene	Alluvium	Alluvium, colluvium, landslide and glacial materials. Consists chiefly of unconsolidated silt, sand, and gravel.	Yields adequate supplies of water for domestic and stock use. Very few irrigation wells are present in the area, but yields should be adequate for restricted irrigation use, at most places, from properly constructed wells.
		Holocene and Pleistocene	Plateau Rhyolite	Rhyolitic ash-flow tuff, light gray, dense, lithoidal, fine grained to aphanitic; angular to round phenocrysts of quartz, sanidine, clinopyroxene, orthopyroxene, fayalite, and sphene make up about 25 percent of volume of rocks.	Generally unknown. As shown in figure 5, the area contains no wells; but the unit has good permeability, as indicated by the rapid percolation of surface runoff to the subsurface and the presence of large springs downgradient at its base. No well-defined stream patterns on its surface. Important to the basin's water-yielding capability.
			Basalt	Composed of basalt of the Snake River Group, older basalt of Island Park caldera fill, and basalt south and southeast of Henrys Fork near Ashton. The flows consist chiefly of olivine basalt. Generally, the flows of the older basalt are of the pahoehoe type, whereas those of the Snake River Group consist of both aa and pahoehoe types.	Yields abundant water for most uses. An important aquifer in parts of the area.
			Yellowstone Group	Rhyolitic ash-flow tuff; consists of three formations that are similar in mineral content and chemical composition. Phenocrysts of quartz, sanidine, and oligoclase are common, much less plentiful are phenocrysts of clinopyroxene, fayalite, hornblende, chevkinite, allanite(?), apatite, and zircon. The formations are Lava Creek Tuff, Mesa Falls Tuff, and Huckleberry Ridge Tuff.	Generally yields adequate supplies of water for domestic and stock use in this area. Highly permeable at places. But in other places, the unit is tightly welded and will not yield adequate supplies of water for irrigation use. Important to the basin's water-yielding capability.
Cenozoic and pre-Cenozoic	Pre-Quaternary	Pre-Pleistocene	Undifferentiated rocks	Undifferentiated igneous, sedimentary, and metamorphic rocks. Includes igneous volcanic rocks of Tertiary age comprising about two 15-square mile areas, one roughly centered on Sawtell Peak, and the other from Mount Two Top south toward Reas Pass. Sedimentary and metamorphic rocks of pre-Tertiary age are exposed along the Continental Divide. The sedimentary and metamorphic rocks consist chiefly of limestone, dolomite, sandstone, siltstone, and quartzose sandstone.	Unknown, but will probably yield enough water at most places for domestic and stock use.

GEOLOGY

Geologic History

The upper Henrys Fork basin is at the eastern end of the Snake River Plain (fig. 1), which is a downwarped feature extending in an arc across southern Idaho and into Wyoming. The plain cuts across preexisting Mesozoic and Cenozoic structures at nearly right angles (Hamilton, 1960). The pre-Cenozoic rocks underlying and bordering the plain are comprised of igneous, metamorphic, and sedimentary rocks. As the plain was being downwarped, volcanism and sedimentation filled it with basalt, rhyolite, and sedimentary deposits.

During Cenozoic time, a large shield volcano formed in the south-central part of the study area and later collapsed to form the Island Park caldera. The elliptical collapse structure covers an area approximately 18 by 23 mi. The western and southern rims of this feature are clearly visible as a semicircular arc formed by Thurmon Ridge and Big Bend Ridge (fig. 4).

Rhyolitic ash flows originating from the Yellowstone Plateau covered the eastern part of the study area before and after eruption of rhyolitic and basaltic flows from the pre-caldera shield volcano. The flows that occurred after the caldera formed covered the eastern caldera rim and overlapped flows from the collapsed volcano. At about the same time, basalt flows occurred southeast of the caldera along the southern part of the study area.

In late Pleistocene time, glaciers scoured the highlands, providing outwash to the valleys and stream channels. Contemporaneously, basalt of the Snake River Group flowed from vents south and west of the caldera and covered some of the rhyolitic ash flows. Some basalt lapped up onto the caldera rim and may have spilled into the caldera itself. Additional rhyolitic lava and ash flows were contemporaneous with the glacial deposits and basalt flows of the Snake River Group. These latest flows issued from vents north and east of the caldera and covered much of the eastern part of the study area.

Surficial Distribution of Geologic Units

The generalized surficial geology of the upper Henrys Fork basin is shown on the map in figure 4. The several geologic reports used in its compilation give much more detail than the units shown on the map, but as such, the map is helpful in explaining the hydrology of the area. Descriptions of the geologic units and their water-bearing characteristics are given in table 1.

One unit deserves special consideration in this report because of the control it exerts on the hydrology of the basin. The Plateau Rhyolite (and to some degree, the Yellowstone Group) is apparently highly permeable, particularly in its upper 100 ft or in highly fractured zones. Although few wells have been drilled in this unit, the high water yield from subbasins underlain by the rhyolite, such as the Buffalo River drainage, suggests considerable recharge and transfer of water between subbasins. The lack of well-defined surface drainage on the rhyolite and the presence of large springs at its base (such as Big Spring and Warm River Springs, 14N-44E-34bbb1S and 10N-44E-10cba1S, respectively, fig. 14) further suggest that rainfall and snowmelt infiltrate rapidly and little runoff and evapotranspiration occurs. For example, in the upper McKenzie River basin in Oregon, which has similar lithology, the water yield was determined to be as great as 75 percent of the annual mean precipitation (Stearns, 1928, p. 187).

The upper 100 ft of the unit is obsidian and breccia (Hamilton, 1965, p. 15) that grade downward into flow-contorted rhyolite several hundred feet thick. This, in turn, grades into massive rhyolite several to many hundred feet thick, which rests on an obsidian-breccia base. The obsidian, particularly that near the surface, is minutely fractured and crumbles readily to sand-size granules.

Subsurface Distribution of Geologic Units

The subsurface distribution of geologic units is defined in a general way and only for parts of the basin because of lack of data. Because drillers' logs are the chief source of subsurface information and most wells were drilled near stream channels in alluvial deposits, the thickness of the alluvium is better defined than that of other geologic units.

A gravity survey by Peterson and Witkind (1975) indicates that the alluvial fill in the elongate valley of Henrys Lake is 3,600 ft or more thick. The fill is derived from volcanic and sedimentary rocks from adjacent highlands (fig. 4). It is thickest near the southern end of Henrys Lake and thins toward the edges of the valley. Well 16N-42E-24cdc1, about 2 mi northwest of Henrys Lake near the north end of the valley, bottomed in alluvium at 186 ft. In the southern end of the valley near Big Springs, the alluvium is less than 100 ft thick, and at many places, only a few feet thick.

North and northwest of Island Park Reservoir, alluvial deposits and basalt compose much of the basin floor at the lower altitudes. In this area, the alluvial fill is thicker near the base of the mountains and thins southward toward Island Park Reservoir.

The eastern part of the basin and the Island Park caldera, which are partly covered by Plateau Rhyolite, were described in detail by Hamilton (1960 and 1965). In the Last Chance-Osborne Bridge area, the alluvial deposits are generally less than 100 ft thick at their deepest point and thin rapidly toward the south.

Numerous well logs indicate that alluvium in the Ashton agricultural area is generally underlain by welded tuff (Yellowstone Group) and basalt.

GROUND WATER

Occurrence

All geologic units within the study area contain some ground water. Most of the water occurs under water-table conditions, that is, it is unconfined. Artesian (confined) conditions may occur, but few wells are known to penetrate such aquifers. Unconsolidated alluvial and glacial material, particularly sand and gravel along stream channels and in valleys, are the more productive aquifers and almost always provide adequate yields to wells. Basalt aquifers are highly variable, but large yields can be obtained if sufficient fracture zones are penetrated by the wells. The rhyolitic ash flows (Yellowstone Group and Plateau Rhyolite) yield sufficient quantities of water to wells for domestic purposes, but large yields are generally limited to places where the flows are highly permeable.

There are several hundred wells in the basin. Except for those in the Ashton area, most are concentrated along streams in areas of summer-home development (fig. 5 and basic-data table A) where the wells are used for domestic water supplies. A few stock wells were drilled in the extreme western part of the basin and just west of the basin boundary (fig. 5). The farming community at Ashton contains numerous wells, used mostly for municipal, domestic, and stock water supply. Only a few are used for irrigation.

Some test wells were drilled in the Island Park caldera in 1921 to determine subsurface conditions as part of a feasibility study for a proposed damsite near Swan Lake (fig. 5).

Data from more than 200 wells are shown in basic-data table A. Data from several wells adjacent to the basin are also included in the table and were used to help define water-level fluctuations and direction of ground-water movement within the basin. About 10 wells in the basin were drilled for irrigation. A few of these are inadequate for irrigation, and others are used to irrigate small tracts of cultivated land or cemeteries. The depths of all wells generally range from less than 10 ft to about 400 ft. One drain well west of Ashton, 9N-42E-27acc1, was drilled to 638 ft.

Aquifer Transmissivities

Transmissivity is the rate at which water of the prevailing kinematic viscosity is transmitted through a unit width of the aquifer under a unit hydraulic gradient. It may be determined by controlled pumping tests, but the tests are time consuming, costly, and generally beyond the scope of a reconnaissance study. However, estimates may be made by applying empirical relations to specific-capacity values derived from pumping data. The specific capacity of a well is the rate of discharge divided by the drawdown of water level within the well. Because specific capacity is a function of well diameter, depth of penetration into the aquifer, nature and extent of perforations, and quality of well development, no precise correlation exists between specific capacity and transmissivity. Nevertheless, approximate values of aquifer transmissivities in the upper Henrys Fork basin were estimated using a method of Thomasson and others (1960), assuming water-table conditions:

$$T \simeq 1{,}500\,(SC)\,(0.134)$$

where

T = transmissivity in feet squared per day, and
SC = specific capacity in gallons per minute per foot of drawdown.

Well yields, drawdowns, and estimated transmissivities for various aquifer units within the basin are shown in table 2. Estimated transmissivities of alluvial aquifers range from 670 ft^2/d to 23,000 ft^2/d. Basalt aquifers have transmissivities of about 200 to 8,700 ft^2/d. Rhyolite flows and tuffs have transmissivities of about 400 to 12,000 ft^2/d.

TABLE 2

SPECIFIC CAPACITIES OF WELLS AND ESTIMATED TRANSMISSIVITIES

Well no.	Well diameter (in)	Aquifer[1]	Pumping rate (gal/min)	Drawdown (ft)	Time (h)	Specific capacity (gal/min)/ft	Estimated[2] trans-missivity (ft^2/d)
16N-42E-24cdcl	16	111ALVM	900	59	6.0	15	3,000
15N-43E-20dcd1	6	112MFLS	17	1.0	1.5	17	3,400
-21bad1	6	112HKBR	50	0[3]	1.0	>50	>10,000
-22bbb1	8	112QTSH	85	0.75	5.0	113	23,000
14N-43E-25bab1	8	112LVCK	36	7.0	2.0	5.1	1,000
-34dcb1	6	112LVCK	20	10	1.0	2	400
-36bbc1	6	112LVCK	100	10	2.0	10	2,000
13N-42E-01abb1	6	112VLCC, 112HKBR	8.6	0[3]	7.0	>8.6	>1,700
-01abb2	6	112VLCC	1.7	0[3]	7.0	>1.7	>340
13N-43E-08dad1	10	112LVCK	305	5.0	5.5	61	12,000
-30bcd1	12	112LVCK	90	2.0	3.0	45	9,000
-33cbb1	6	112GRRT	20	20.0	1.0	1.0	200
13N-44E-05dac1	6	112ALVM, 112LVCK	90	13.0	4.0	6.9	1,400
-05dac2	6	112ALVM, 112LVCK	50	9.0	9.0	5	1,100
12N-40E-10aca1	6	111SKRV	300	7.5	–	40	8,000
12N-43E-17dab1	6	112ALVM, 112GRRT	20	0[3]	1.0	> 20	>4,000
9N-42E-34dcc1	16	112FLRV	450	67.0	--	6.7	1,400
-34dda1	16	112FLRV	800	72.0	3.0	11	2,200
-35cdc1	12	112FLRV	300	7.0	–	43	8,600
9N-44E-30cbb1	8	112FLRV	20	20.0	1.0	1.0	200
8N-42E-06adb1	16	112ALVM	350	110	--	3.2	640

[1] 111ALVM, 112ALVM — Alluvium and glacial material
112QTSH — Outwash material; gravel, sand, silt, and clay
112HKBR, 112MFLS, 112LVCK, 112PLTU, 112VLCC — Rhyolitic flows and tuff
111SKRV, 112GRRT, 112FLRV — Basalt

[2] Based on method by Thomasson and others (1960, p. 222) using factor of 1500 times specific capacity (assuming water-table conditions) and factor 0.134 to convert to ft^2/d.

[3] Driller's log reported steady water level or no drawdown.

Movement of Ground Water

In most places, ground water is constantly in motion. It moves from places of high head (pressure measured by water levels in wells) to places of low head, from areas of recharge to areas of discharge. It is generally recharged in the highlands and discharged in the lowlands.

The direction of movement is inferred from the water-table-contour map (fig. 5). Water moves downgradient at approximately right angles to the contours. Well data are insufficient to define accurately water-table contours in much of the study area, so topography, springs, and other hydrographic features were used to aid construction of the map.

Around Henrys Lake, ground water moves toward the lake. Near its outlet, ground water moves southward through the valley parallel to flow in Henrys Fork. In the permeable valley fill south of Henrys Lake, the water-table contours show a rather flat gradient.

In the vicinity of Island Park Reservoir, some ground water flows southward and eastward and passes through the northwest rim of the caldera toward Henrys Fork. This is indicated chiefly by water-quality and water-yield data in the respective subbasins.

In the Ashton area, water-table contours indicate that a ground-water divide roughly parallels the surface-drainage divide. Recharge from percolation of excess irrigation water diverted into the basin from Falls River apparently moves northward and westward toward Henrys Fork.

Previous investigators have hypothesized that ground water flows through the surface-drainage divide along the boundary of the basin west and southwest of Island Park Reservoir. A steep water-table gradient in the adjacent Snake Plain aquifer suggests substantial underflow from the basin into the aquifer, but water-level data collected during this study on both sides of the drainage divide clearly show that this hypothesis is incorrect. A definite ground-water divide exists, as shown on figure 5. The ground-water divide probably shifts as water levels fluctuate, and in September 1975, it apparently was about 1 mi west of the surface-drainage divide. Thus, ground-water movement through the surface divide was into rather than out of the upper Henrys Fork basin in September 1975.

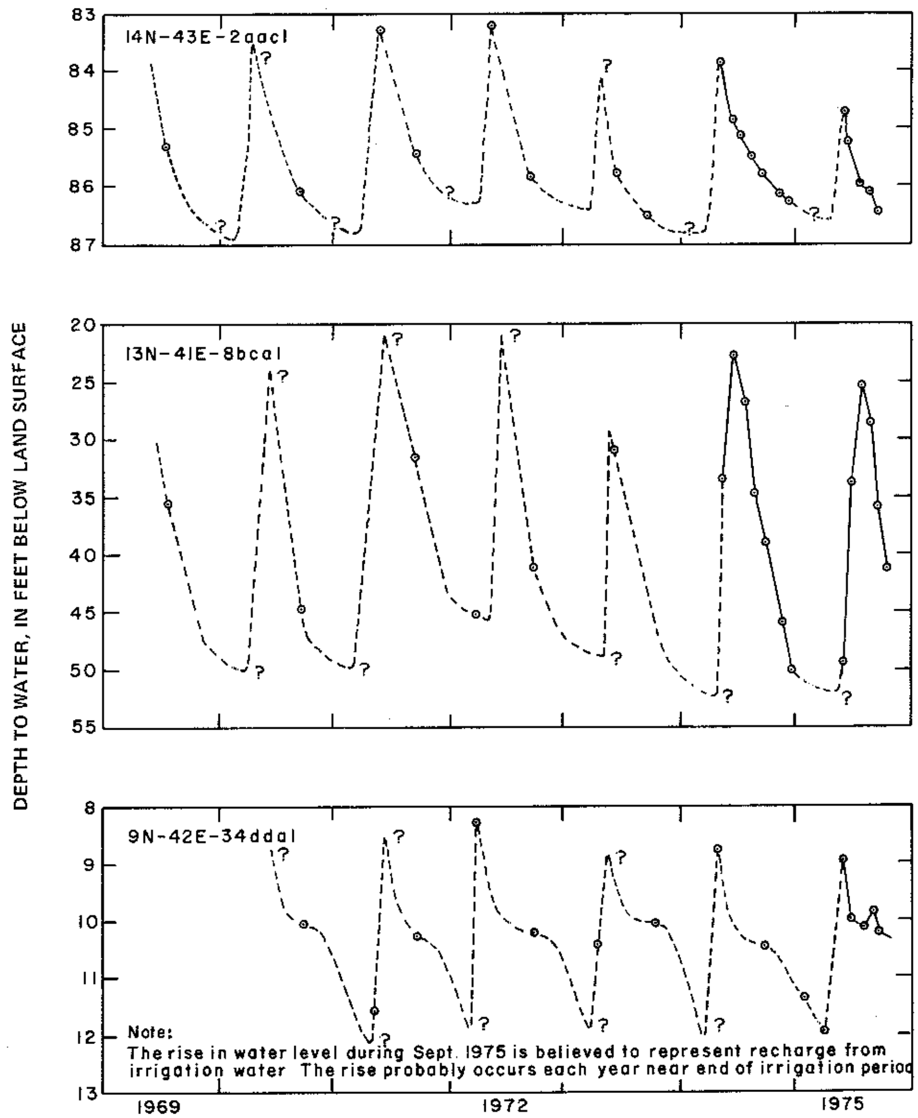
Water-Level Fluctuation

About 50 wells were measured monthly from June to December 1974 and June to October 1975 to document seasonal water-level fluctuations (basic-data table A). Because of inaccessibility during the winter, only a few wells were measured from January through May 1975. Hydrographs of observation wells are shown in figure 6 to illustrate the seasonal fluctuations.

Shortly after the spring thaw, generally during May or June, water levels rise quickly in response to recharge from percolating snowmelt. The levels peak at various times from late May to September. After the annual peak is attained, water levels decline until the following spring, when they again begin to rise in response to recharge. Selected hydrographs are shown in figure 5 to illustrate how water levels fluctuate in various parts of the basin.

Water levels in wells, though showing similar seasonal trends, differ considerably in the magnitude of fluctuations. Water levels in wells along the edges of the basin, closest to major recharge areas, generally show the greater fluctuations. Wells near the center of the basin generally fluctuate less than 10 ft per year.

Long-term trends of water levels are illustrated by hydrographs of three wells measured semiannually since about 1969 (fig. 6). The hydrographs show that annual water-level changes are much less than seasonal changes and generally reflect above- or below-normal precipitation for that year. The timing of measurements makes a detailed analysis of trends difficult, but the data indicate that changes since 1969 have been minimal. Measurements made in 1973 and 1975 indicate that water levels may have been lower than normal in those years. However, examination of the climatological data shows that the total annual precipitation is not the chief factor influencing the water levels. More important is the time of year most precipitation occurs. In 1973 and 1975, more than 50 percent of the total precipitation was during the warmer months (May through October), whereas in 1974, only about 20 to 30 percent of the precipitation occurred during the warmer months. Thus, more water was available from snowmelt to recharge the aquifers in 1974, whereas in 1973 and 1975, a greater amount of potential recharge was probably lost to evapotranspiration.



(Circles are measured water levels; dashed lines represent inferred water levels, which are based on other water levels measured during the study, and climatological data.)

FIGURE 6. Water levels in selected observation wells in upper Henrys Fork basin.

Springs

The upper Henrys Fork basin contains numerous springs (table 3), two of which discharge water in excess of 90,000 gal/min. The springs issue chiefly from volcanic rocks and are the sources of many streams in the area.

For example, three major tributaries of Henrys Fork—Big Springs Creek, Buffalo River, and Warm River—obtain most of their flow from groups of springs either at their heads or along their channels. These springs occur along the base of the steep-fronted bluffs of Plateau Rhyolite. The combined flow of these springs is about 270,000 gal/min, which is nearly 42 percent of the average discharge of Henrys Fork near Ashton. Locations of major springs in the basin are shown in figure 5.

Thermal Water

Because many known potential geothermal systems occur near volcanoes or in calderas of later Tertiary or Quaternary age, and because the basin is adjacent to Yellowstone National Park where geothermal activity is readily apparently, the upper Henrys Fork basin has received considerable attention for exploration for geothermal resources. A part of the basin adjacent to Yellowstone National Park (fig. 1) has been designated a KGRA (known geothermal resource area). However, from known surface expressions of geothermal activity, from unpublished gravity, magnetic, resistivity, and audio-magnetotelluric data (Long, 1975), and from maximum reservoir temperatures calculated using silica (Fournier and Rowe, 1966) and sodium-potassium-calcium thermometers (Fournier and Truesdell, 1973), it does not seem likely that the basin has great potential for geothermal development within the near-surface environment. Downward flow of cold water from the shallow zones could, however, mask any thermal potential that might exist at depth.

In this report, springs with water temperatures higher than 12.0°C are considered thermal springs. Thermal springs are defined as having a temperature 8.3°C above mean annual air temperatures in the locality. Ashton and Island Park have mean annual air temperatures of 5.3° and 2.3°C, respectively.

Seven springs in the basin (fig. 5 and table 3) had temperatures warmer than 12.0°C: Sheridan Spring (13N-41E-6cdb1S), 19.0°C; Buffalo River springs system (13N-43E-24dac1S and 13N-43E-24dbc1S), 14.5° and 16.5°C, respectively; unnamed springs (10N-45E-35abc1S), 17.0°C; Ashton hot springs (9N-42E-23dac1S), 41.0°C; and unnamed springs (9N-43E-14dbc1S and 9N-43E-15ddc1S), 12.5° and 24.5°C, respectively.

Temperature measurements in selected shallow wells (C. A. Brott, oral commun., 1975) indicate no great near-surface geothermal gradients. The water temperatures measured in the wells did not vary greatly with depth, generally reflected the mean annual temperature, and indicated a downward flow of water near some wells. Temperatures measured from 16.4 ft below the top of the well and at the bottom of selected wells (fig. 5) are as follows:

Well no.	Total depth (ft)	Temperature range (°C)
15N-43E-24aab1	202	8.5- 7.9
12N-44E-20adb1	105	5.9- 6.1
10N-42E-24aba1	220	4.2- 4.0
9N-42E-20ccd1	206	7.6-10.2
9N-44E-21aad1	110	5.5- 6.6

TABLE 3
SPRINGS IN THE UPPER HENRYS FORK BASIN

Spring no.	Spring name	Owner	Date visited	Discharge[1] (gal/min)	Number of openings	Altitude above mean-sea level (ft)	Geohydrologic unit[2]	Specific conductance (µmhos)	pH	Water temperature (°C)
16N-42E-23ddd1S	Timber Spring	E.J. Steinke	6-23-74	500	Numerous	6,602	112MFLS	194	7.7	6.0
16N-44E-32caa1S	Howard Springs	U.S. Forest Service	6-22-74	450	Numerous	7,020	112HKBR	80	7.4	3.0
14N-44E-16dad1S	Meadow Creek Springs	Unknown	12-03-74	9,000	Numerous	5,420	112LVCK	78	7.2	9.5
14N-44E-34bbb1S	Big Springs	U.S. Forest Service	8-28-72	92,200	Numerous	6,390	112PLTU	102	6.4	12.0
13N-41E-06ccd1S	Sheridan Springs	Unknown	8-06-75	225e	Numerous	6,540	112HKBR	106	7.1	4.5
13N-41E-06cdb1S	Sheridan Springs	Unknown	8-06-75	2,250e	Numerous	6,538	112HKBR	369	7.7	19.0
13N-42E-10cbb1S	Unnamed	U.S. Forest Service	6-08-74	2,160	--	6,500	112HKBR	42	7.3	5.5
13N-43E-24bcc1S	Carr Springs	Carr	7-22-75	7	12	6,285	112HKBR	82	--	8.5
13N-43E-24dac1S	Buffalo River Springs	U.S. Forest Service	7-24-75	2,250e	2	6,290	112LVCK	--	--	14.5
13N-43E-24dbc1S	Buffalo River Springs	U.S. Forest Service	7-24-75	7e	2	6,290	112LVCK	197	6.7	16.5
13N-44E-21adc1S	Unnamed	U.S. Forest Service	6-04-74	315	1	6,350	112LVCK	74	6.8	11.0
13N-45E-09cdd1S	Latham Springs	U.S. Forest Service	6-21-74	45	Numerous	7,628	112PLTU	23	6.5	2.5
12N-42E-15ccc1S	Railroad Spring	Railroad Ranch	9-16-74	--	--	6,150	112MFLS	164	7.4	11.5
11N-43E-05bdc1S	Osborne Springs	U.S. Forest Service	6-08-74	3,460	--	6,129	112GRRT	81	7.3	5.5
11N-44E-18bab1S	Pineview Campground Springs	U.S. Forest Service	9-10-75	4,300	Numerous	6,120	112GRRT	82	--	5.0
10N-44E-10cba1S	Warm River Springs	Idaho Fish & Game	8-28-74	90,000	--	5,915	112LVCK	125	7.2	11.0
10N-45E-35abc1S	Unnamed	U.S. Forest Service	8-30-72	--	--	6,540	112MFLS	19	7.2	17.0
09N-42E-23dac1S	Ashton hot springs	Gordon Baum	8-28-72	2	--	5,185	112FLRV	155	7.6	41.0
09N-43E-14dbc1S	Unnamed	Howell	10-23-75	450e	--	5,280	112HKBR	358	7.9	12.5
09N-43E-15ddc1S	Unnamed	Howell	10-23-75	1,350e	Numerous	5,240	112HKBR	337	8.0	24.5
09N-44E-06aa1S[3]	Unnamed	U.S. Forest Service	10-07-75	54e	3	--	--	--	--	--
09N-45E-12bac1S	Unnamed	U.S. Forest Service	9-19-74	20e	--	6,200	112FLRV	66	7.7	5.0

[1] e, estimated

[2] 112HKBR, 112MFLS, 112LVCK, 112PLTU — Rhyolitic flows and tuffs

112GRRT, 112FLRV — Basalt

[3] Site not visited during project; located by U.S. Forest Service

SURFACE WATER

The upper Henrys Fork basin is a source area for large supplies of surface water for downstream water users. The collection of streamflow data to describe this resource began in 1890 with establishment of a gaging station on Henrys Fork (then known as the North Fork Snake River) near Ashton. Since then, about 10 stations have been operated at various times to collect daily or other periodic streamflow data in the basin. In addition, miscellaneous measurements of streamflow and spring flow have been made at various times since the early 1900's (basic-data table B and fig. 7). These data are published in U.S. Geological Survey Water-Supply Papers, an open-file report by Decker and others (1970), in annual reports of the U.S. Geological Survey, Idaho District, and of Idaho Water District 1. The location of each streamflow-measuring site is shown in figure 7; site data are tabulated in basic-data table B. At present (1975), the stream-gaging network consists of a crest-stage gage, three continuous-recording gages, and two stage gages on the major storage reservoirs. These gages are on Targhee Creek near Macks Inn (13038900), Henrys Fork near Lake (13039500), Henrys Fork near Island Park (13042500), Henrys Fork near Ashton (13046000), Henrys Lake near Lake (13039000), and Island Park Reservoir near Island Park (13042000), respectively.

To supplement the data from the three existing Henrys Fork gaging stations and to aid in defining the distribution of flow throughout the basin, measurements of stream discharge were made approximately monthly at six additional sites from April 1974 through November 1975 (fig. 7).

Forty-eight other streams were measured periodically to determine low-flow characteristics. Additional streamflow measurements were made at several sites in the basin along Henrys Fork and Warm River in the fall of 1975. In addition, all significant inflows to the rivers and reservoirs were measured or estimated in the fall of 1975 to determine the distribution of flow during low-flow conditions.

Discharge measurements made during this study are tabulated in basic-data table C, along with measurements of temperature, pH, and specific conductance.

Variability of Annual Discharge

The gaging station on Henrys Fork near Ashton measures all the surface water flowing from the upper Henrys Fork basin. Fifty-five complete water years of record are available for this gaging station from April 1890 to June 1891, August 1902 to June 1909, and April

1920 to present (1975). The mean annual discharge for these 55 water years is 1,441 ft^3/s, or 1,044,000 acre-ft. (In U.S. Geological Survey reports, the water year is defined as the 12-month period beginning October 1 and ending the following September 30. It is designated as the calendar year in which it ends; for example, September 30, 1976, marks the end of the 1976 water year.)

The variability of annual flow past the gaging station on Falls River near Squirrel, outside but adjacent to the basin, is similar to that for Henrys Fork near Ashton (fig. 8); therefore, the two stations are correlative. The Falls River station has some complete years of record which are missing for the Henrys Fork station and is, therefore, useful in defining the basin's water resources.

Frequency curves based on annual means at three sites are shown in figure 9. These curves represent the complete record of annual mean discharge at each site and indicate the recurrence interval, in years, when specific discharges are equaled or exceeded. For example, an annual mean discharge of about 230 ft^3/s has a probability of being exceeded once in 2 years, or 50 percent of the time, in the Warm River at Warm River site (fig. 9). Mean annual and annual mean discharges for selected sites are shown in figure 10.

Monthly Discharge

Monthly flow records provide a convenient method of looking at hydrologic characteristics of a stream, such as seasonal flow distribution. Continuous records are available for relatively few sites in the basin. For stations with continuous records (see fig. 10), monthly mean discharges (average of daily discharges for month) and mean monthly discharges (long-term average for a given month) are easily determined. To obtain estimates of monthly discharges at miscellaneous-record sites within the basin, periodic streamflow measurements were made. Using a method developed by Riggs (1969), the periodic measurements were correlated with flow characteristics at continuous-record sites to estimate the monthly mean and mean monthly discharges (table 4).

Mean monthly discharges for continuous-recording stations and estimated discharges for miscellaneous sites are shown in figure 10.

The mean monthly and monthly mean discharges for the 1975 water year are listed in table 4. In general, the 1975 monthly mean discharges exceed the mean monthly discharges.

The graphs of mean monthly discharges for selected sites in the basin (fig. 10) show hydrologic characteristics of both regulated and natural streams. Henrys Fork near Lake shows effects of reservoir regulation by greater releases of water in late summer after the spring runoff. The graph for Henrys Fork near Big Springs shows effects of releases of water from Henrys Lake, particularly during May through September. During October through April, monthly means are probably indicative of natural flow characteristics for this area.

The station Henrys Fork near Island Park, below the Island Park Dam, reflects the steady releases of water from the dam for irrigation during the summer and fall. Graphs for successive stations on Henrys Fork downstream from the dam show diminishing effects of

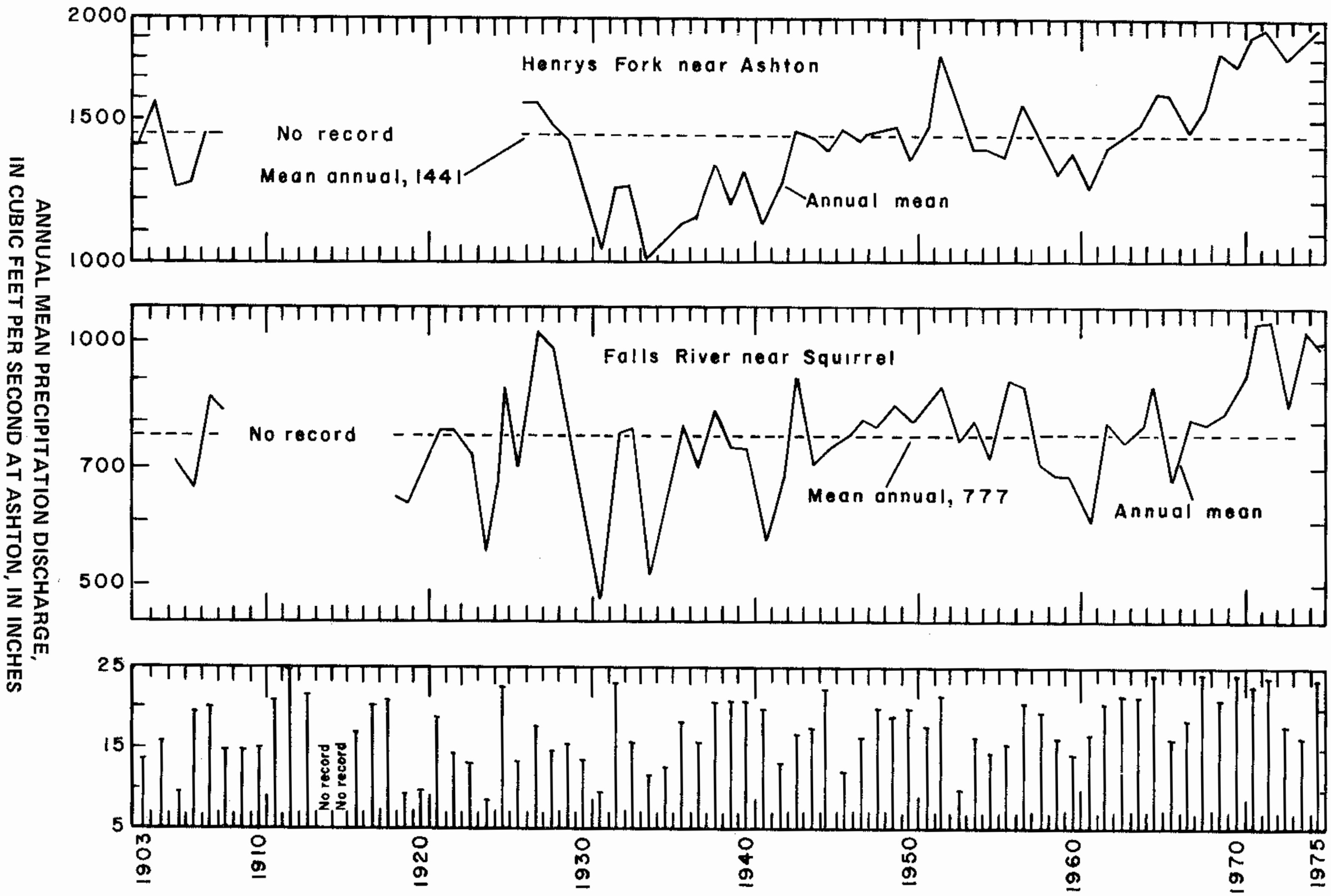


FIGURE 8. Mean annual and annual mean discharge for the period of record at correlative stations, and annual mean precipitation at Ashton.

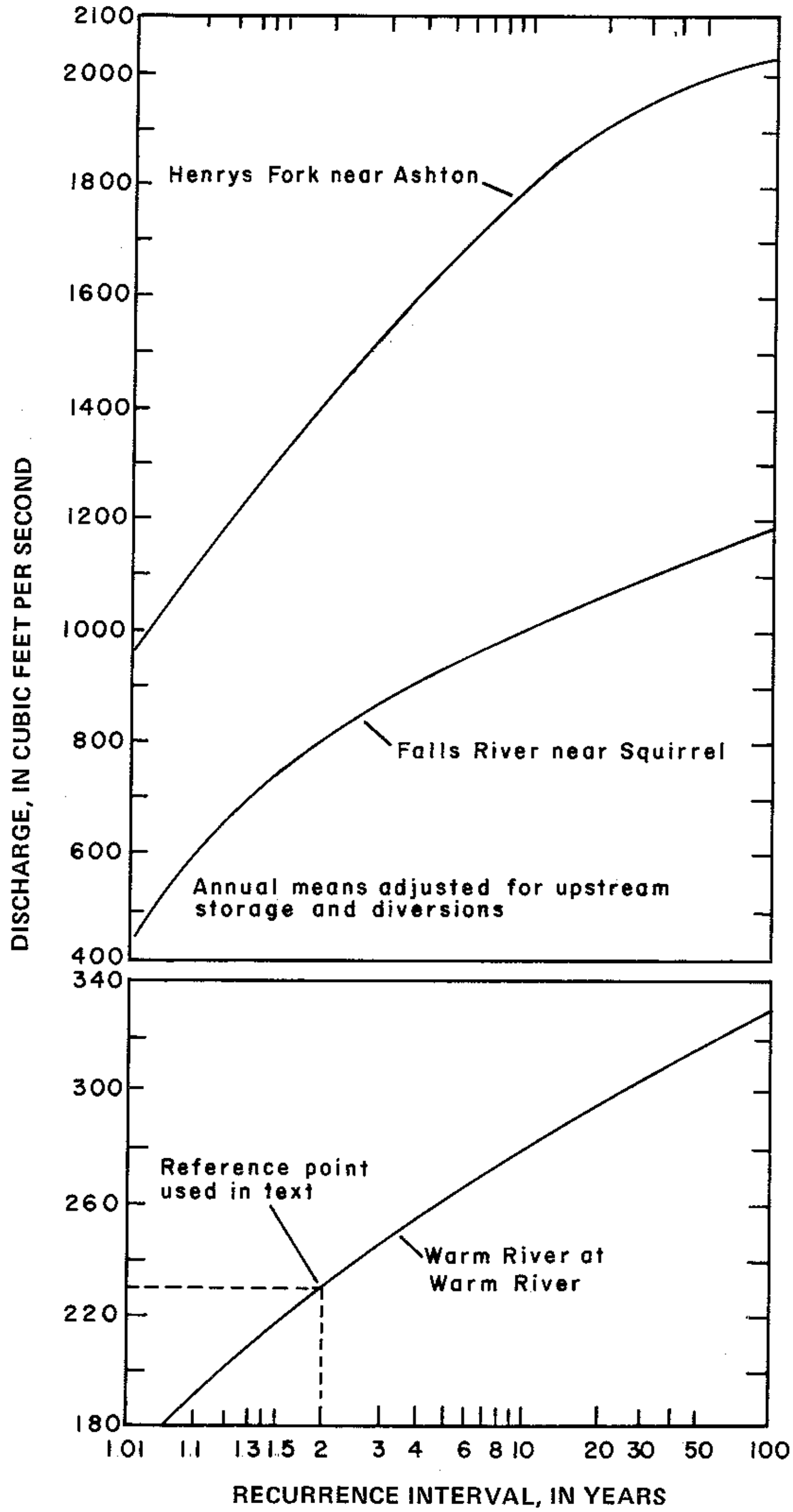


FIGURE 9. Frequency curves of annual mean discharge for selected sites.

TABLE 4
MEAN DISCHARGES FOR SELECTED STREAMS
(Discharge in cubic feet per second)

Site no.	Name	Annual mean 1975 water year	Mean annual period of record	O	N	D	J	F	M	A	M	J	J	A	S
				MONTHLY MEAN, 1975 WATER YEAR (upper value) / MEAN MONTHLY, PERIOD OF RECORD (lower value)											
13039500	Henrys Fork near Lake	79.3	52.9	18.3	27.5	47.0	45.5	50.9	96.3	91.4	166	58.6	131	127	87.6
				20	13	14	15	19	23	31	56	93	151	164	56
13040000	Henrys Fork near Big Springs[1]	280	200	120	150	165	170	180	265	330	575	410	390	345	250
				90	100	100	105	115	150	205	355	315	340	325	170
13042500	Henrys Fork near Island Park	808	594	748	579	623	616	376	535	828	1,130	1,245	1,021	1,202	756
				490	313	230	188	248	305	474	973	934	1,070	1,100	776
13043000	Buffalo River at Island Park[1]	250	180	270	250	240	220	215	230	190	310	345	260	230	220
				195	180	175	160	155	165	140	225	250	190	165	160
13043800	Henrys Fork at Osborne Bridge[1]	1,240	895	1,120	1,030	945	930	700	895	1,290	1,860	2,000	1,360	1,570	1,120
				775	720	625	550	630	680	1,050	1,560	1,120	1,030	1,150	975
13044000	Henrys Fork at Warm River[1]	1,480	1,070	1,350	1,200	1,200	1,070	1,050	1,020	1,480	2,300	2,330	1,620	1,840	1,310
				930	850	790	630	720	775	1,120	1,780	1,300	1,230	1,340	1,140
13044500	Warm River at Warm River[1]	290	210	260	280	270	250	260	210	260	340	420	350	300	310
				190	205	195	180	190	150	190	245	305	255	220	225
13045500	Robinson Creek at Warm River[1]	170	120	110	95	100	75	80	80	70	265	735	185	115	105
				80	70	75	55	60	60	50	190	535	135	85	75
13046000	Henrys Fork near Ashton	1,978	1,441	1,762	1,553	1,501	1,586	1,307	1,373	1,718	3,023	3,639	2,263	2,316	1,647
				1,220	1,090	987	939	987	1,050	1,530	2,550	2,020	1,730	1,690	1,430
13047500	Falls River near Squirrel	995	777	613	601	588	534	472	428	412	1,210	3,290	2,370	788	618
				499	488	445	408	399	403	670	1,850	2,170	912	563	525

[1] Estimated values, rounded to nearest 5 ft^3/s. Values estimated using a correlation method of Riggs (1969) and by comparision with other data in the basin.

regulation as the flow approaches Henrys Fork near Ashton. Steady ground-water contributions, both from large springs and seepage, are indicated by the relative stability of the mean monthly flows in Warm and Buffalo Rivers.

Low-Flow Discharge

A stream's dependability of flow is reflected by its low-flow characteristics, which give an indication of the water available during the driest part of the year. The availability is important for fish propagation, agriculture, sewage dilution, and other uses.

Computed low-flow characteristics for streams with gaging-station records are given in table 5. Also given in table 5 are estimated low flows for 15 streams with only miscellaneous measurements. The estimates were made using a method devised by Riggs (1972). The estimated low-flow characteristics were determined only for sites which had a correlation coefficient of 0.80 or better with continuous-record stations in or near the basin.

Low-flow frequency curves representing 7-day periods for selected streams are shown in figure 11. The curves for 1-, 3-, and 14-day periods are similar to their respective 7-day periods; therefore, they are not shown. The curves for Henrys Fork near Island Park and near Lake reflect regulation in the upstream reservoirs.

The low-flow curves can be used to estimate the flow for specific periods, for example: the curve for Henrys Fork near Ashton (fig. 11) indicates that the 7-day low flow will be less than 750 ft^3/s at intervals averaging 10 years in length, or the probability is 0.1 that the 7-day low flow will be less than 750 ft^3/s in any one year. Actual low-flow measurement data are given in basic-data table C.

Peak Flows of Record

Flood volume or high-flow characteristics of streams are important in the design of structures and in land-use planning. But, because of adequate reservoir storage and the undeveloped nature of the basin above Ashton, damage from flooding is believed to be minimal. However, some minor local flooding during spring runoff may occur in areas along Henrys Fork and its tributary channels.

Peak flows of record for selected stream-measuring sites in the upper Henrys Fork basin are as follows:

	Date	Peak flows (ft^3/s)
Targhee Creek near Macks Inn (13038900)	5-23-70	458
Henrys Fork near Lake (13039500)	6-13-20	907
Henrys Fork near Island Park (13042500)	4-26-46	2,770
Buffalo River at Island Park (13043000)	4-19-30	509
Henrys Fork at Warm River (13044000)	5-18-27	3,540
Warm River at Warm River (13044500)	6-02-12	900
Robinson Creek at Warm River (13045500)	6-05-75	1,210
Henrys Fork near Ashton (13046000)	5-07-25	6,220

TABLE 5

LOW-FLOW CHARACTERISTICS OF SELECTED STREAMS

(Discharge in cubic feet per second)

Site no.	Name	1-day low flow				3-day low flow				7-day low flow				14-day low flow			
		2-yr	5-yr	10-yr	20-yr	2-yr	5-yr	10-yr	20-yr	2-yr	5-yr	10-yr	20-yr	2-yr	5-yr	10-yr	20-yr
	COMPUTED LOW-FLOW CHARACTERISTICS[1]																
13039500	Henrys Fork near Lake	4.8	1.7	0.76	0.45	4.8	1.7	0.87	0.46	5.1	1.7	0.84	0.45	5.2	1.7	0.86	0.42
13042500	Henrys Fork near Island Park	11.0	3.9	2.6	2.0	12.0	4.0	2.6	1.9	13	4.0	2.4	1.7	13	4.0	2.4	1.7
13044000	Henrys Fork at Warm River	490	350	300	260	520	390	330	290	560	420	360	310	580	430	370	320
13044500	Warm River at Warm River	180	160	140	130	180	160	150	150	180	170	160	160	190	170	170	160
13045500	Robinson Creek at Warm River	49	36	30	25	51	38	32	27	54	42	36	31	54	44	39	36
13046000	Henrys Fork near Ashton	650	460	380	320	720	550	480	420	760	620	560	520	790	650	600	550
13047500	Falls River near Squirrel	350	270	210	160	350	290	250	210	360	300	270	240	370	320	280	260
	ESTIMATED LOW-FLOW CHARACTERISTICS[2]																
13038600	Hope Creek above diversion near Macks Inn											1.3					
13038605	Duck Creek near Macks Inn											4.5					
13038900	Targhee Creek near Macks Inn											4.6					
13040000	Henrys Fork near Big Springs											45					
13041492	Taylor Creek near Island Park											1.6					
13041495	Schneider Creek near Island Park											4.8					
13041496-7	Myers and Willow Creeks near Island Park											2.4					
13041600	Icehouse Creek near Island Park											14					
13043000	Buffalo River at Island Park											120					
13042890 } 13044100 }	North and south channels Split Creek near Island Park											10					
13044980	Rock Creek above Wyoming Creek											1.4					
13044990	Wyoming Creek near Ashton											.87					
13045100	Rock Creek above Shaefer Creek											2.2					
13045200	Porcupine Creek below Rising Creek											.78					
13045400	Fish Creek near Warm River											3.7					

[1] Computed using data for period of record. Rounded to two significant figures.
[2] Estimated using a method by Riggs, 1972. Values shown only for the 7-day, 10-year period. Rounded to two significant figures.

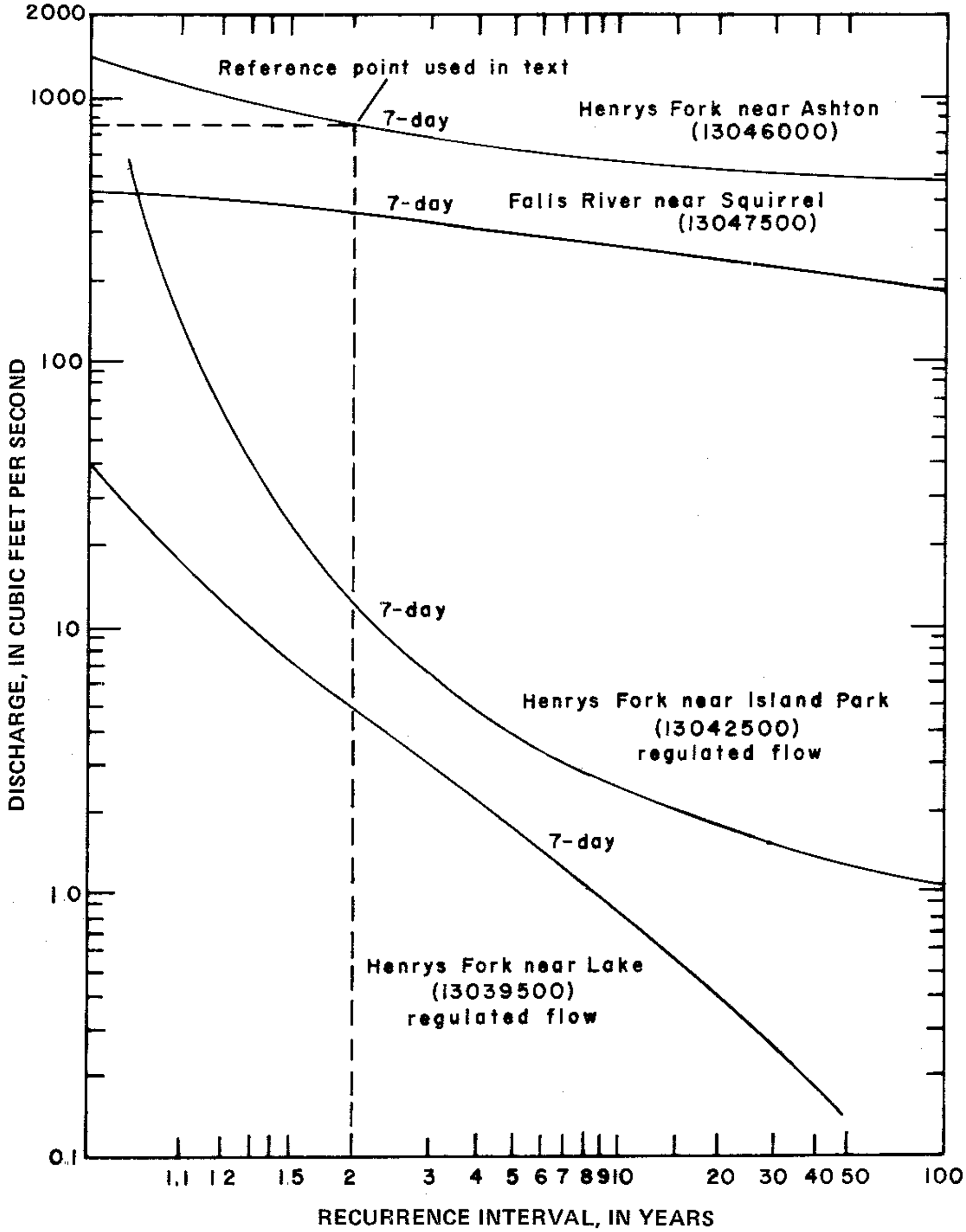


FIGURE 11. Low-flow frequency curves for selected streams.

Discharge-measurement runs were made along segments of Henrys Fork and Warm River in the fall of 1975, during baseflow conditions, to determine if certain reaches were either gaining or losing by way of interchange with ground water. Several runs, some of which overlapped, were necessary to complete the determinations. In general, the series of measurements indicate that neither stream loses significant flow to the ground. However, substantial gains were observed along certain reaches of both streams (tables 6 and 7).

TABLE 6
GAINS AND LOSSES IN HENRYS FORK, FALL 1975
(Discharge in cubic feet per second)

Site no.	Site name	Date of measurement	Discharge	Inflow (+) or outflow (-)	Gain (+) or loss (-)	Specific conductance (µmhos)
13039500	Henrys Fork near Lake	8-19-75	118			235
13039525	Henrys Fork at highway near Valley View	-do-	122		+4	227
13040000	Henrys Fork near Big Springs	-do-	204		+82	184
13040500	Big Springs Creek at Big Springs	-do-		+233		98
13040600	Thirsty Creek at Big Springs	-do-		+4.7		67
13040800	Moose Creek near Big Springs	-do-		+71.2		111
13041010	Henrys Fork at Coffee Pot Lodge	-do-	528		+15	136
13042500	Henrys Fork near Island Park	11-04-75	146			187
13043000	Buffalo River at Island Park	-do-		+230		116
13043500	Henrys Fork at DeWiners Ranch	-do-	427		+51	166
13043510	Blue Springs Creek near Island Park	-do-		+5.0		156
13043520	Island Park Land & Livestock Company Canal	-do-		-1.0		--
13043600	Henrys Fork near Osborne Bridge	-do-	428		-3	170
13043780	Silver Lake Outlet near Island Park	-do-		+22.7		187
13043800	Henrys Fork at Osborne Bridge	-do-	538		+77	180
13044000	Henrys Fork at Warm River	11-05-75	650		+112	--
13045510	Warm River at mouth of Warm River	-do-		+390		--
13045600	Henrys Fork below mouth of Warm River	-do-	1,040		0	132
13045796	Henrys Fork above Ashton Reservoir	-do-	1,070		+30	138
13046000	Henrys Fork near Ashton	-do-	1,030[1]			--

[1] From daily mean gage heights.

TABLE 7
GAINS AND LOSSES IN WARM RIVER, FALL 1975
(Discharge in cubic feet per second)

Site no.	Site name	Date of measurement	Discharge	Inflow (+) or outflow (-)	Gain (+) or loss (-)	Specific conductance (µmhos)
13044112	Warm River at Boy Scout Camp	9-17-75	9.7			53
13044120	Warm River near Boy Scout Camp	-do-	8.9		-0.8	55
13044122	Warm River at Eccles	-do-	10.1		+1.2	55
13044130	Warm River at Pineview	-do-	10.3		+.2	62
13044134	Pineview Campground Springs	-do-		9.6		75
13044166	Partridge Creek at mouth	-do-		8.9		--
13044170	Warm River below mouth of Partridge Creek	-do-	32.7		+3.9	65
13044200	Warm River above fish hatchery	-do-	57.4		+24.7	66
13044200	Warm River above fish hatchery	8-20-75	66.3			--
13044250	Warm River Springs	-do-		200		125
13044300	Warm River below fish hatchery	-do-	266		0	128
13044320	Moose Creek near Warm River	-do-		6.9		111
13044500	Warm River at Warm River	-do-	289		+16	119

PRECIPITATION

Precipitation data were collected at six climatological stations, three within and three outside, but near, the study area (fig. 10). In addition, water content of snowpack was measured at one station site and at nine snow-course sites in the basin. This sampling was inadequate to define precipitation over the entire basin; however, by relating precipitation to altitude, estimates of basinwide precipitation were obtained.

Water content of the snowpack, though not a measure of total annual precipitation at a given site, is useful in comparing precipitation among various sites. A curve (fig. 12) derived by plotting the average April (for period of record) water content of snowpack versus altitude indicates the rate of change in precipitation with altitude. The slope of this curve correlates well with a similar plot of the average annual precipitation data from the six climatological stations (fig. 13) and is used to extend the precipitation-altitude relation to higher altitudes where annual data are not available. Because of summer rainstorms, which are common in some years, and possible unknown effects of rain shadows, a straight-line relation (fig. 13) may not be entirely true; but, for the purpose of this study, it is thought to be adequate. Mean annual precipitation is about 35 in, based on the average altitude of the basin and using the precipitation-altitude curve.

A comparison was made between the mean annual precipitation value obtained using the curve and a weighted-average value obtained by planimetering contoured areas on figure 10 (lines of equal mean annual precipitation compiled by Thomas, Broom, and Cummans, 1963). The value obtained by planimetry was 29.4 in. The curve-derived value is thought to be more accurate, for it is based on data that were not available when the precipitation-contour map was prepared.

Relation Between Streamflow and Precipitation

In the upper Henrys Fork basin, annual mean streamflow generally reflects annual mean precipitation (fig. 8), the major source of recharge to the basin. A minor amount of recharge may occur near Ashton from percolation of irrigation water that is diverted to the basin from the Falls River drainage. The basin's mean annual discharge is about 50 percent of its mean annual precipitation, estimated at 35 in.

The annual streamflow-precipitation relation does not always hold (fig. 8). Changes in weather patterns affect the relation. Normally, most of the precipitation occurs as snow during fall and winter. Snowmelt in the spring generally provides most of the runoff to

Snow course No.	Name	Altitude above mean sea level (ft)	Period of record	Water content of snow (in)[1]
1	Big Springs	6,500	1936-73	21.2
2	Black Canyon	7,850	1961-73	34.7
3	Black Moose	8,125	1961-73	40.2
4	Island Park	6,315	1938-73	16.5
5	Latham Springs	7,650	1961-73	34.2
6	Lucky Dog	6,900	1963-73	25.6
7	Sawtell Mountain	8,715	1967-74	39.7
8	Targhee Pass	7,000	1969-73	18.5
9	Valley View	6,500	1950-73	17.6
10	White Elephant	7,700	1973-74	31.6

[1] Average April water content of snow for period of record.

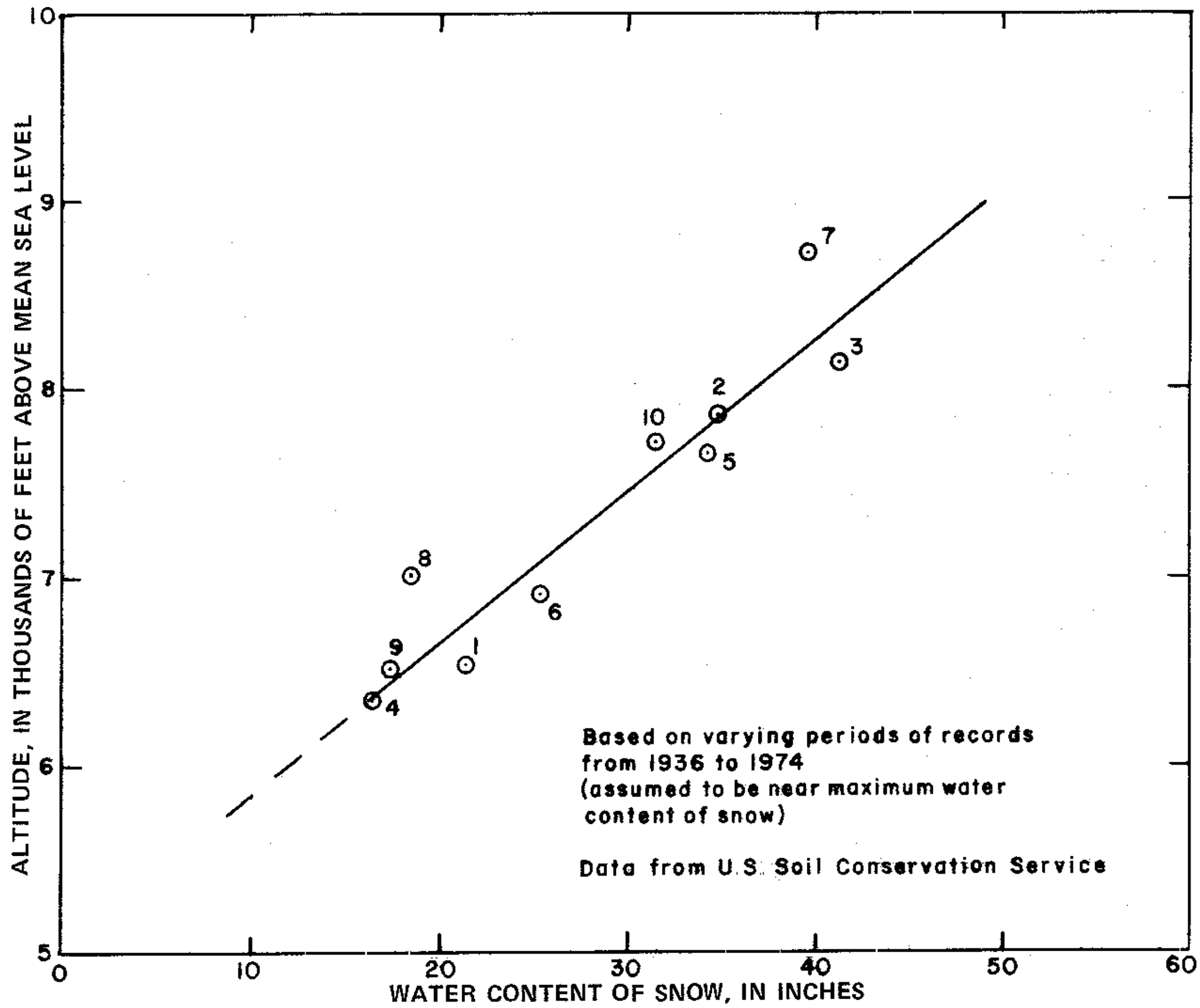


FIGURE 12. Relation of altitude to average April water content of snow at selected snow courses.

Climatological station No.	Name	Altitude above mean sea level (ft)	Mean annual precipitation (in)[1]
1	Ashton	5,200	17.2
2	Big Springs	6,500	30.7
3	Island Park Dam	6,300	30.8
4	Rice	5,600	22.3
5	St. Anthony	4,968	15.0
6	Sugar	4,890	12.3

[1] Short periods of record for some stations were correlated with Ashton station for representative long-term conditions.

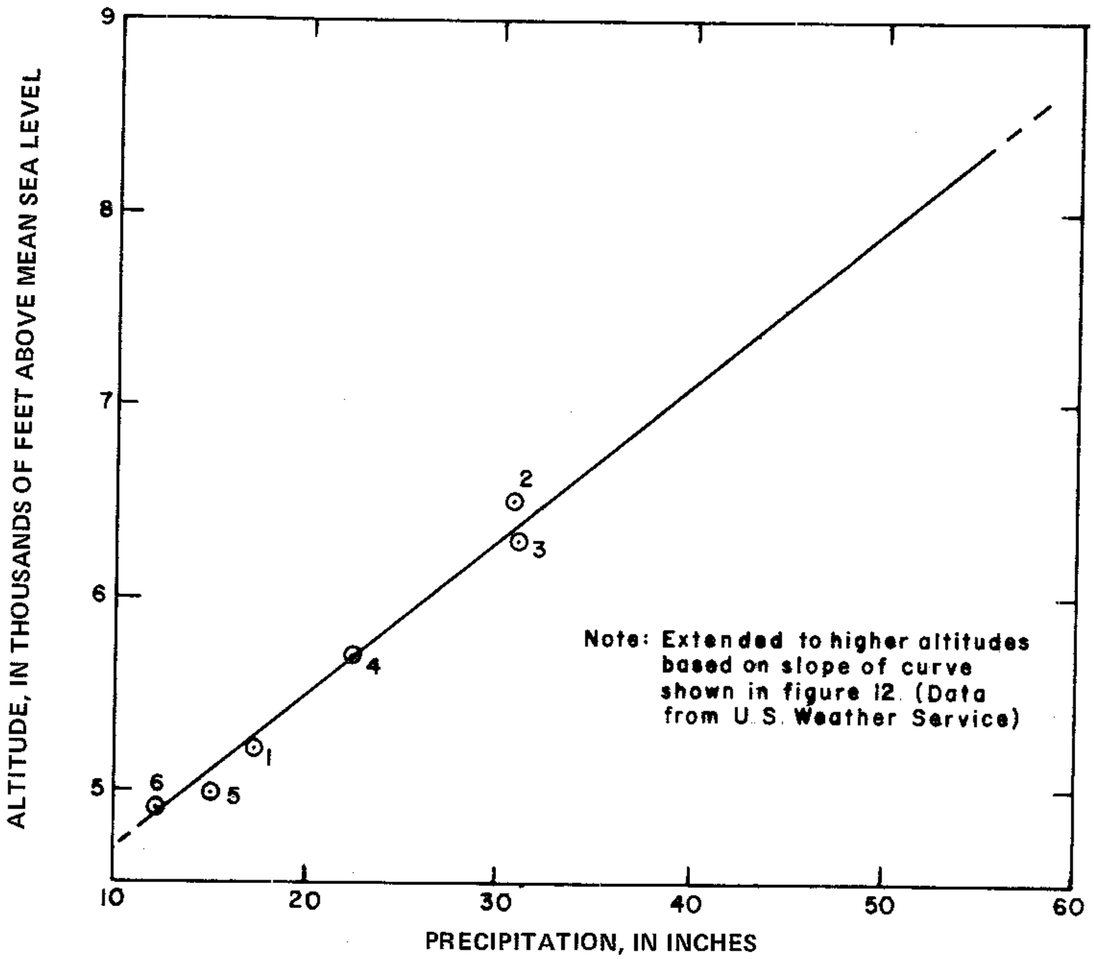


FIGURE 13. Altitude-precipitation relations in the upper Henrys Fork basin.

streams and recharge to aquifers. However, in some years, a large part of the annual precipitation occurs during the summer, and evapotranspiration accounts for much of the discharge.

Estimated potential evapotranspiration is about 17 in per year for the basin (U.S. Forest Service, John Osborne, written commun., 1975). The estimate is based on a method developed by Thornthwaite (1948), for conditions in the eastern United States where moist conditions prevail. In dry climates, the potential evapotranspiration may exceed precipitation. *If a shallow water table does not supply the deficit, actual evapotranspiration can be* less than the potential.

WATER QUALITY

Water-quality data were collected over a broad area of the basin to provide a baseline from which future changes could be appraised. Water-quality data are also useful to help determine the source and movement of water and to aid in management of the water resources.

Water-quality samples were collected from about 120 surface- and ground-water sites (see basic-data table D). Samples were specifically collected at approximately monthly intervals to assess seasonal changes at 10 sites on Henrys Fork and its main tributaries. Also, Henrys Lake and Island Park Reservoir were each sampled in the fall and spring to document seasonal changes.

Table 8 summarizes the significance of various water-quality properties and shows how they might relate to uses of water.

Major Ions

Major ions include the cations (postively charged)—calcium, magnesium, sodium, and potassium, and the anions (negatively charged)—chloride, bicarbonate, carbonate, and sulfate. Concentrations and relative proportions of the major ions for selected samples of ground water are shown by pattern diagrams in figure 14. The patterns show the regional types of water in the basin. With a few exceptions, the water quality can be traced to the influences of three general rock units (see fig. 4 and table 1). Ground water in the northern part of the basin is the calcium magnesium bicarbonate type, which reflects its association with carbonate rocks (Tp) along the Continental Divide. Ground water in the western and central parts reflects contact with basaltic rocks (Qb) and generally contains a predominance of calcium and magnesium over sodium but is less mineralized than water associated with carbonate rocks. Water that has been in contact with silicic volcanic or rhyolitic rocks (Qy, Qp) contains a predominance of sodium over calcium and magnesium, and concentration of most dissolved constituents generally is low.

Ground water in the Ashton area contains greater concentrations of most dissolved constituents than water from other parts of the basin, probably because of agricultural activity.

Concentrations of major ions in surface waters also show a significant relation to rock types. Water draining carbonate rocks along the northern boundary of the basin is generally

TABLE

SIGNIFICANCE OF SELECTED CHEMI

(Concentrations in milligrams per

Property	Significance	Normal range of concentration in fresh water	Limits recommended for domestic use
Silica (SiO_2)	Indicator of past or present thermal activity.	1-30, although up to 100 is common.	See remarks.
Calcium (Ca)	Present in most waters; adds to hardness.	Less than 10 to several hundred.	75
Magnesium (Mg)	Present in most waters; adds to hardness.	Less than 10 to several hundred.	125
Hardness as calcium carbonate ($CaCO_3$)	Hard water.	<50->200	0-60, soft [1] 61-120 moderately hard 121-180, hard >180, very hard
Sodium (Na)	Present in most waters; excess amounts are detrimental to agriculture.	1.0-200	250
Potassium (K)	Present in most waters; concentration usually less than sodium; essential plant nutrient.	0.01-10	20
pH	Expresses the acidity or alkalinity of a solution.	5-9 pH units	4.5-10 pH units
Alkalinity as calcium carbonate ($CaCO_3$)	Measure of water's capacity to neutralize acids.	<30-500	—
Sulfate (SO_4)	Present in most waters; detrimental for most uses if present in excess.	<25-570	250[2]
Chloride (Cl)	Present in most waters.	< 1.0-540	250[2]
Fluoride (F)	Concentrations below 1.0 mg/L beneficial to dental health.	0.01-10	1.0[2]
Nitrite plus nitrate as nitrogen, dissolved (NO_2+NO_3 as N)	Plant nutrient.	<1.0-10	10[2]
Total phosphorus as phosphate (P)	Plant nutrient.	—	1.0[2]
Dissolved solids sum of constituents	Measure of mineralization of water.	50-1,000	500[2]
Percent sodium	Percent of sodium of the total cations, in milliequivalents per liter.	—	50 percent
SAR (sodium-adsorption ratio)	Prediction of cation exchange of soil and water ions.	—	—
Specific conductance	Estimate of dissolved solids.	50-1,000 μmhos	700 μmhos
Water temperature (°C)	Ground-water temperatures higher than the mean annual temperatures may indicate deep circulation of the water or thermal activity.	—	—
Dissolved oxygen (DO)	Required to sustain aquatic life in surface water	—	—
Fecal coliform (indicator bacteria)	Indicator of contamination from warm-blooded animals.	—	—

1 Hem, 1970, p. 225, (values shown are definitions only, not limits).
2 National Academy of Sciences and National Academy of Engineering, 1974.

8

CAL AND BIOLOGICAL PROPERTIES

liter, except where otherwise noted.)

Adverse effects	Unusual concentration may indicate	Concentrations in samples of upper Henrys Fork basin water	Remarks
See remarks.	Association with thermal water.	0.1-100	In presence of calcium and magnesium it will form deposits in boilers.
Causes deposits in plumbing.	Association with sedimentary rocks.	1.1-95	Contributes to the hardness of water.
Causes deposits in plumbing.	Association with sedimentary rocks.	0.1-39	Contributes to the hardness of water.
Soap will not lather; forms scales when heated.	—	0-190	—
Loss of soil permeability.	Highway salting; association with igneous rocks.	0.5-36	Humans with restricted diets should not use water with more than 20 mg/L sodium.
—	—	0.2-4.0	—
Water corrosive if too high or too low.	—	6.3-10.0 pH units	0 — 7 — 14 (Acid / Alkaline)
Objectionable taste.	—	2-547	—
Possible cathartic effect on humans.	—	0.8-34	Concentrations in excess of 250 mg/L will form scales when heated.
Objectionable taste.	Highway salting; organic wastes.	0.1-36	Chloride is not removed by soils; indicator of possible pollution.
Dental fluorosis (mottling of teeth)	Association with thermal water.	0-4.6	Recommended limit is dependent on annual average of maximum daily air temperature.
Blood disorder in infants; excessive algal growths.	Organic wastes; excessive fertilization.	0.00-2.4	Excessive concentration may indicate possible organic pollution.
Excessive algal growths.	Organic pollution	0.00-0.54	—
Cathartic effect on humans.	—	14-506	A considerable number of water supplies exceed the recommended limit without ill effects.
Loss of soil permeability.	—	1-94 percent	—
—	—	0.1-8.8 (ratio)	—
—	—	19-830 μmhos	Easily measured.
High surface-water temperature depletes dissolved-oxygen concentration.	Thermal pollution; association with thermal activity.	1.0-41.0 $^{\circ}$C	—
Loss of aquatic growth and reproduction.	Low concentrations in surface water indicate pollution.	3.3-14.0	—
—	Fecal pollution.	0-380	Concentration in number of bacteria per one hundred milliliters of sample.

of the calcium magnesium bicarbonate type, whereas surface flow from the area of Plateau Rhyolite is predominantly sodium bicarbonate type water (see figs. 4 and 15).

The chemical character of water in the main stem of Henrys Fork (sites 1-7, fig. 15) changes as the river flows through the basin. The water quality at any point on the river can be related to the sources of inflow above the point. The trilinear plot of cation balance in figure 15 clearly demonstrates the effects of mixing. The numbered samples on the plot correspond to the numbered sampling sites on Henrys Fork. Major tributary inflows are represented by lettered samples (A-E).

Samples 1 and 2 collected downstream from Henrys Lake are calcium magnesium type water representative of the runoff from carbonate rocks of the bordering mountains. Big Springs (sample A), a major tributary to Henrys Fork, has a much higher percentage of sodium than Henrys Fork below Henrys Lake (sample 2). Where the two waters mix, the resulting cation balance is almost equal in sodium and calcium (sample 3). Near the west end of Island Park Reservoir, Sheridan Creek contributes calcium magnesium rich water (sample B) to Henrys Fork. Outflow from Island Park Reservoir (sample 4) is thus higher in calcium and magnesium than Henrys Fork above the reservoir (sample 3). Buffalo River (sample C) has a high percentage of sodium, which results in a shift toward a higher percentage of sodium in Henrys Fork at Osborne Bridge (sample 5). Ground water contributes most of the inflow to Henrys Fork between Osborne Bridge and Henrys Fork at Warm River (sample 6), thus, the water quality at these two sites is nearly identical. Warm River and Robinson Creek (samples D and E) have a higher percentage of sodium than Henrys Fork water above Warm River. Where these waters mix with Henrys Fork, the resulting cation balance is toward higher sodium, shown by Henrys Fork near Ashton (sample 7).

Specific Conductance

Specific conductance, the measure of a water's ability to conduct electric current, is closely related to dissolved-solids concentration. The dissolved-solids concentration, in mg/L, is characteristically 60 to 75 percent of the specific-conductance value. The complete unit of measure for specific conductance is micromhos per centimeter at 25°C. For convenience, the abbreviation μmhos is used in this report.

Specific-conductance measurements are easily and accurately obtained in the field and thus provide an inexpensive indicator of the general water quality. An approximation of the dissolved solids in water in this basin can be made by multiplying specific conductance by 0.60. For example, a field measurement of specific conductance of 300 μmhos would indicate a dissolved-solids concentration of about 180 mg/L. Specific-conductance values in the basin ranged from about 50 μmhos to about 800 μmhos (basic-data table D).

Nutrients

The chief plant nutrients in water are phosphorus and nitrogen. Whereas these elements may occur naturally in rocks, they may also occur as byproducts of biological processes. Phosphorus is more common in rocks than nitrogen and some phosphate-bearing rocks may be present along the Continental Divide (Kirkham, 1927, p. 21). Nitrogen is usually present in the soil and in biological material. Significant amounts of nitrogen can also enter the basin from precipitation, chiefly from snow (Wetzel, 1975).

Excessive concentrations of nitrate in water generally result from leaching of organic and inorganic material from farmland or from decomposition of nitrogenous material. Nitrate does not enter into ion-exchange reactions, and except for that used in biological processes, tends to stay in solution. This can result in relatively high concentrations in ground water, particularly in or near agricultural areas where animal wastes and fertilizers may contribute to nitrate concentrations. For example, in the Ashton agricultural area, the highest concentration of nitrate measured in the ground water was 25 mg/L.

Both phosphorus and nitrogen are essential for normal plant growth. However, dense, undesirable growths of algae, or "blooms," occur at times in water bodies that receive excessive amounts of these nutrients.

Concentrations of nutrients in surface water in upper Henrys Fork basin are generally low but show some seasonal variation (basic-data table D and table 11). During the warm months, when biologic activity is high, the concentrations are at their lowest levels, suggesting consumption by plant and animal life.

In parts of Henrys Fork and its tributaries above Ashton, algal and plant growths are common for part of the summer, although not at nuisance levels. However, nuisance growths do occur in Henrys Fork from near Last Chance to Osborne Bridge. The river is unshaded, wide, and fairly shallow in this reach, and is downstream from most of man's influences in the upper part of the basin. Water temperature, also important to a stream's biologic activity, can remain over 20° C in this reach for several days at a time, under certain weather conditions.

Pesticides

Samples for pesticide analyses were collected from Henrys Fork above Island Park Reservoir and at Osborne Bridge. Analyses were made for the following:

Aldrin	Dieldrin	PCB
Chlordane	Endrine	PCN
DDD	Heptachlor	Silvex
DDE	Heptachlor epoxide	Toxaphene
DDT	Lindane	2, 4-D
		2, 4, 5-T

None were found in the samples.

Turbidity and Suspended Solids

Samples were analyzed for turbidity and suspended solids at selected sites in the basin during 1974. The values were generally low, averaging about 1.4 Jtu (Jackson turbidity units) for turbidity and about 9.5 mg/L for suspended solids. Because of the low values, no samples were analyzed for these characteristics after 1974.

Speth and others (1971) reported that the recommended turbidity level of 5 Jtu was exceeded consistently at only one of their sampling sites, Henrys Fork near Big Springs (13040000).

Microbiological Analyses

Tests for presence of indicator bacteria, TC (total or immediate coliform), FC (fecal coliform), and FS (fecal streptococcus) were made at a number of ground-water sites (table 9) and surface-water sites (basic-data table D and fig. 15).

These microbiological tests, while not conclusive evidence for the presence or absence of pathogenic or disease-bearing bacteria, can give an indication of the amount of pollution in a body of water, especially near sources of pollution. The presence of FC bacteria is evidence of contamination by wastes from warm-blooded animals. As the number of bacteria increases, the possibility of pathogenic or harmful bacteria also being present increases.

Millipore Corporation (1972) described a method that uses the ratio of FC to FS to interpret the source of fecal bacteria in a water sample. Within certain limitations specified by Millipore Corporation (1972), the ratio of FC/FS is indicative of the following:

1. FC/FS >4.0—pollution from human wastes;

2. FC/FS <0.7—pollution wholly or predominantly from livestock or poultry wastes;

3. FC/FS between 2 and 4—predominance of human waste in a mixed pollution;

4. FC/FS between 0.7 and 1.0—predominance of livestock or poultry wastes in a mixed pollution; and

5. FC/FS between 1 and 2—uncertain interpretation; sampling should be nearer the pollution source.

Based on these ratios, the microbiological data for the study area indicate that both human and animal wastes have some effects on the surface water at selected sites, particularly in the peak visitor season during the summer.

Ground-water samples in the basin were free of indicator bacteria with a few exceptions. In most places, these exceptions can probably be explained by improper sealing of a well near the land surface, thus allowing contaminated water to enter the well. Contamination of the ground water does not seem to be a serious problem at present. However, contamination problems have been reported locally (Forsgren, Perkins and Associates, 1971), particularly in areas of shallow water table and fractured rock, where summer homes using septic tanks are closely spaced.

Water-Quality Conditions in Lakes and Reservoirs

Water-quality data were collected at several sites (fig. 15) in September 1974 and June 1975 to establish the general inorganic, nutrient, water-temperature, and biological characteristics (basic-data table D) of Henrys Lake and Island Park Reservoir. Lake and reservoir profiles of dissolved-oxygen concentrations and water temperatures were also taken during the sampling period at HL-1, HL-2, and HL-6 sites (fig. 16) on Henrys Lake, and at IP-1, IP-2, IP-3, IP-5, and IP-6 sites on Island Park Reservoir (fig. 17). Taxonomic descriptions

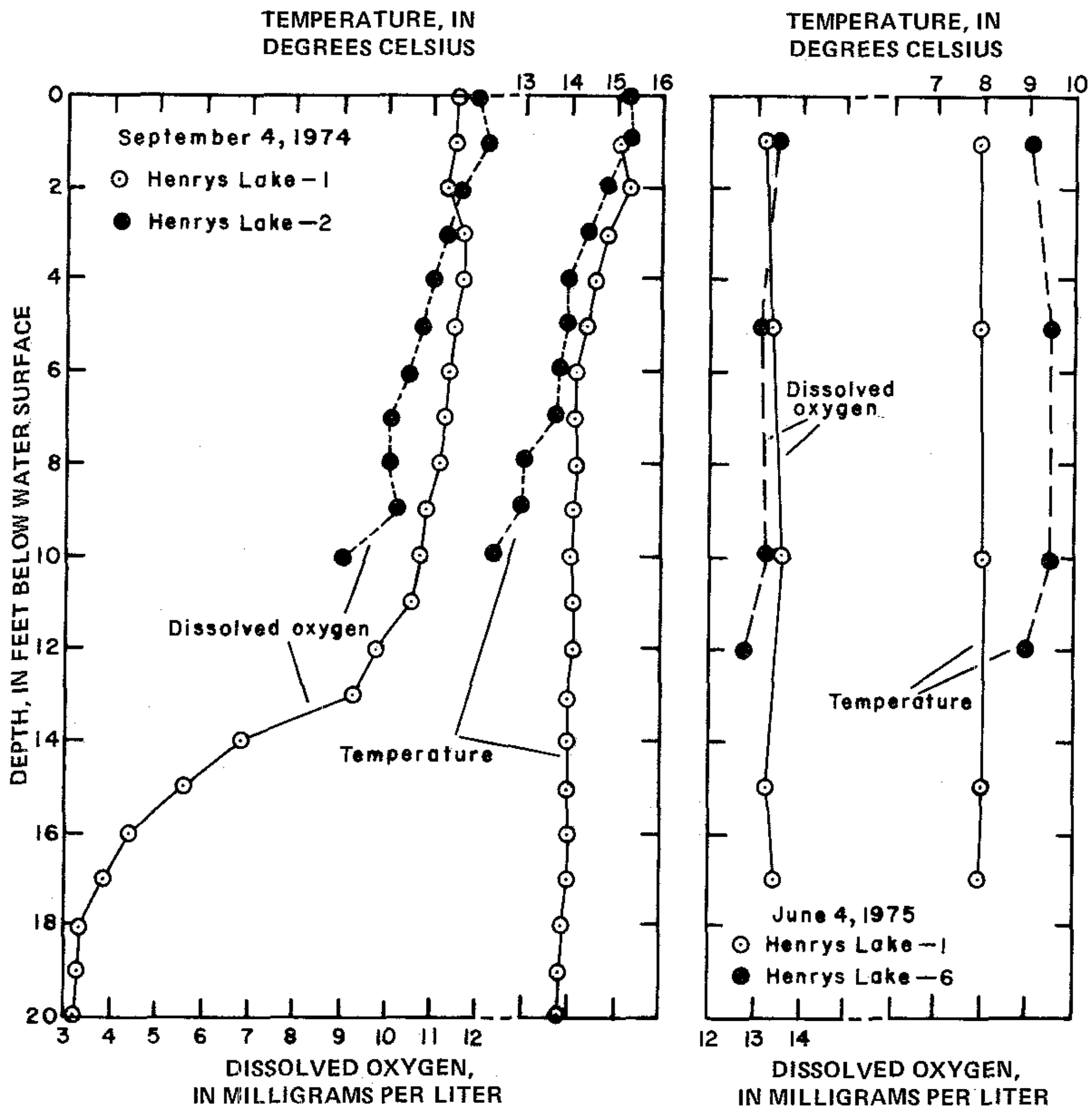


FIGURE 16. Dissolved-oxygen and temperature profiles for Henrys Lake.

FIGURE 17. Dissolved-oxygen and temperature profiles for Island Park Reservoir.

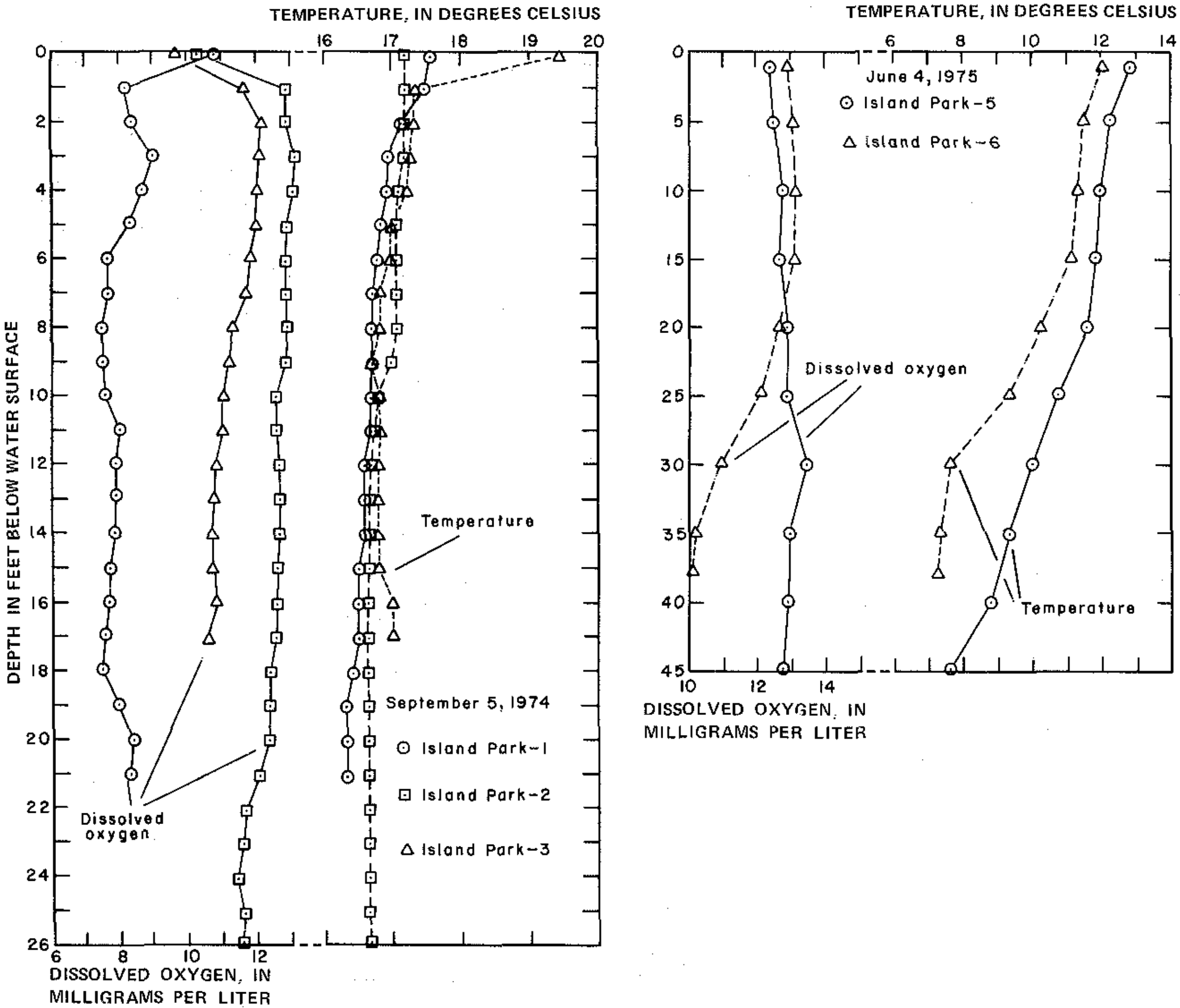


TABLE 9
SPECIFIC CONDUCTANCE, pH, AND MICROBIOLOGICAL ANALYSES OF GROUND WATER IN THE UPPER HENRYS FORK BASIN

Well no.	Date	Specific conductance (μmhos)	pH	Number of bacteria per 100 mL of sample: (Total) immediate coliform	Fecal coliform	Fecal strepto-coccus
			WELLS			
16N-43E-33cbc1	06-27-74	--	--	0[1]	0	0
15N-43E-26cdd1	06-27-74	--	--	0	0	0
	07-20-74	208	7.2	1	0	<1
14N-43E-24dca1	09-11-74	59	7.2	0	0	0
	12-03-74	76	7.3	0	0	0
	07-22-75	56	6.6	--	0	--
-25bab1	07-22-75	76	7.1	--	0	--
14N-44E-30aac1	06-27-74	134	7.4	0	0	0
	09-11-74	131	7.2	0	0	0
13N-42E-12acb1	07-21-74	65	7.1	0	0	0
	09-13-74	64	7.5	0	0	1
	12-03-74	73	8.0	0	0	3
-12cba1	07-21-74	62	7.3	0	0	<1
	09-12-74	67	6.5	4	0	116
	12-03-74	68	7.9	0	0	2
13N-43E-15adc1	07-21-74	75	7.2	3	0	0
	09-11-74	84	7.2	0	0	0
	12-03-74	102	7.4	0	0	0
	04-08-74	--	--	--	0	--
	05-20-75	97	7.4	--	0	--
	06-25-75	70	7.4	--	0	--
	07-20-75	77	7.2	--	0	--
-15dad1	07-22-75	65	7.3	--	0	--
-23aba1	09-13-74	106	7.1	0	0	0
	07-22-75	95	7.1	--	0	--
12N-43E- 8dcc1	06-26-75	101	6.9	--	0	--
-17acd1	06-26-75	167	7.3	--	0	--
-17adc1	06-26-75	99	7.2	--	0	--
-17cdd1	09-12-74	131	7.6	0	0	0
	04-09-75	--	--	--	0	--
	05-22-75	129	7.3	--	0	--
	06-26-75	161	7.4	--	0	--
-17dab1	09-12-74	145	7.5	0	0	0
-17dba1	09-11-74	143	7.0	0	0	0
	12-03-74	156	7.7	0	0	0
	04-08-75	--	--	--	0	--
	06-26-75	159	7.4	--	0	--
	07-22-75	157	7.0	--	0	--
-17dba2	06-28-74	148	7.4	10	0	0
	07-22-74	145	--	24	0	1
	09-12-74	151	7.3	0	0	0
	05-22-75	241	7.0	0	1	0
-17dba4	05-22-75	168	7.4	--	0	--
11N-42E-11dad1	07-22-74	124	--	0	0	1
	09-13-74	134	7.2	0	0	0
	12-04-74	139	7.7	0	0	--
	05-22-75	145	7.4	--	0	--
-11ada2	06-26-75	90	6.8	--	2	--
	07-22-75	90	6.6	--	0	--
9N-42E-23dda1	07-24-74	375	7.4	<1	0	<1
	12-04-74	463	7.6	0	0	1
	05-21-75	461	7.6	--	0	--
			SPRINGS			
16N-42E-23ddd1S	06-27-74	--	--	10[2]	1[2]	0[2]
	07-20-74	240	7.7	29	0	1[2]
13N-43E-24bcc1S	07-22-75	82	6.6	--	0	--
12N-42E-15ccc1S	09-16-74	164	7.4	0	0	0
11N-43E-5bdc1S	06-10-74	85	7.1	>40	0	0

[1] 0, material specifically analyzed for but not detected.
[2] Nonideal colony count.

and concentrations of phytoplankton samples taken during the sampling period are shown in table 10. Nutrient concentrations in samples from the above water bodies are shown in table 11.

Henrys Lake seems to fit the cold, monomicitic classification of Cole (1975, p. 130-132). Such lakes are characterized by stagnation under ice cover during the winter and then circulation from water-density differences that commence with the spring thaw. However, any thermal stratification that may build up during the summer is probably destroyed by wind, thereby keeping the shallow lake (less than 30 ft deep) in a generally constant state of circulation during the warm months. Water-temperature profiles taken in September 1974 and June 1975 (fig. 16) show little stratification, indicating that the lake was in a period of mixing.

The dissolved-oxygen profile for September 1974 shows the oxygen content is uniform for the first 10 ft but decreases rapidly below, probably resulting from oxygen consumption

TABLE 10

PHYTOPLANKTON ANALYSES OF WATER SAMPLES FROM HENRYS LAKE AND ISLAND PARK RESERVOIR

Henrys Lake		Island Park Reservoir	
September 1974		**September 1974**	
Phytoplankton	410,000 cells/ml	Phytoplankton	3,800 cells/ml
Anabaena[1]	86 percent	Aphanizomenon[1]	98 percent
Anacystis[1]	14 percent	Scroederia	2 percent
		Nitzschia	1 percent
June 1975		**June 1975**	
Phytoplankton	12,000 cells/ml	Phytoplankton	8,300 cells/ml
Cyclotella[2]	89 percent	Cyclotella[2]	97 percent
Anacystis[1]	6 percent	Nitzschia	1 percent
Chlamydomonas	4 percent	Navicula	1 percent
Goelonkinia	1 percent	Tabellaria	1 percent

[1]Blue-green algae
[2]Diatoms

TABLE 11

NUTRIENT CONCENTRATIONS IN WATER FROM HENRYS LAKE AND ISLAND PARK RESERVOIR

(May 1974 to September 1975)

Date	Nitrite plus nitrate as N, dissolved (mg/L)	Phosphorus total as P (mg/L)	Date	Nitrite plus nitrate as N, dissolved (mg/L)	Phosphorus total as P (mg/L)
	Henrys Lake			Island Park Reservoir	
05-23-74	0.02	0.06	05-23-74	0.02	0.06
06-27-74	.01	.09	06-28-74	.03	.09
07-20-74	.00	.05	07-22-74	.01	.07
09-11-74	.06	.06	09-11-74	.04	.05
10-21-74	.26	.08	10-21-74	.03	.01
12-02-74	.34	.02			
			04-10-75	.10	.03
03-03-75	.42	.01	05-21-75	.02	.02
04-09-75	.45	.02	07-22-75	.00	.03
05-20-75	.44	.02	09-15-75	.03	.07
07-22-75	.01	.02			
09-15-75	.05	.04			

by organic decomposition. The June 1975 dissolved-oxygen and temperature profiles, which are representative of the spring turnover period, show well-mixed waters that are uniform with depth.

Island Park Reservoir is shallow (less than 50 ft at most places) and is similar to Henrys Lake in mixing characteristics. The dissolved-oxygen and temperature profiles (fig. 17) for September 1974 show little stratification, indicating well-mixed waters. Wind action probably destroys any stratification of the water during the warm months. However, the June 1975 profiles indicate a temperature gradient that probably results from large tributary inflows of cold water from spring runoff into the reservoir.

Phytoplankton data from Henrys Lake and Island Park Reservoir (table 10) indicate that the water bodies undergo yearly changes in lake fertility. Generally, in the spring, after winter stagnation under ice cover, the dominant algae are diatoms. When circulation improves with warmer temperatures and sunlight, blue-green algae, which are indicators of eutrophication, are dominant. Nutrient concentrations (basic-data table D and table 11) for water from Henrys Lake and Island Park Reservoir indicate an increase during the cold months, when blue-green algae production slows down, and a decrease during the season of productivity.

Silver Lake and Icehouse Creek Reservoir were sampled during the study to document baseline water-quality conditions in small water bodies. Both are shallow (less than 10 ft deep) and have bottom-rooted plants and restricted water circulation. The pH values of water in these bodies are greater than 8.4, which can be explained on the basis of physical conditions. Carbon dioxide and bicarbonate uptake by aquatic plants in the shallow water, and nonreplenishment of bicarbonate ions because of restricted inflow probably result in increased hydroxyl (OH^-) concentrations, thus increasing pH (National Academy of Sciences and National Academy of Engineering, 1974).

SUGGESTED MONITORING NETWORKS

Ground-Water Levels

Ground-water levels are currently monitored semiannually in three wells (14N-43E-2aac1, 13N-41E-8bca1, and 9N-42E-34dda1) in the basin. Data collected during this study indicate that semiannual measurements are generally misleading, coinciding with actual annual high or low water levels only occasionally (see figs. 5 and 6). If the semiannual frequency is continued, care should be taken to insure that the measurements are obtained as near the annual highs and lows as possible. Monthly measurements obtained in 1974 and 1975 help define when annual high and low levels are likely to occur (fig. 6). Quarterly measurements would more accurately define the annual cycle than the current practice of semiannual measurements. Also, monthly measurements of water levels in well 9N-42E-34dda1, for at least a year, would be useful to define seasonal trends in the Ashton area, where recharge from irrigation water may significantly affect water levels.

In addition to increasing the frequency of measurements, consideration should be given to adding three wells to the current monitoring network. Well 15N-43E-13bca1 would be useful in monitoring fluctuations in the Henrys Lake area. Well 13N-43E-15adc1 could be used to monitor fluctuations near Island Park. Well 9N-44E-21aad1 would be helpful in monitoring effects of irrigation in the agricultural area east of Ashton. With addition of the first two wells above, well 14N-43E-2aac1 could be dropped from the network, for it is difficult to reach during winter.

Ground-Water Quality

Ground-water quality was not monitored on a periodic basis in the basin prior to this study. Increased use of ground water for domestic supplies in areas of summer-home developments suggests the need for a surveillance network. Previous studies have indicated the possibility of bacterial contamination of shallow ground-water supplies, which could be a threat to public health.

Sampling of water in wells 15N-43E-13bca1, 13N-43E-15adc1, 11N-42E-11dad1, 9N-42E-19cbd1, and 9N-42E-23dda1 would provide an adequate starting network for a general surveillance of the basin's ground-water quality. At least annual analyses for bacterial content of water in these wells is suggested during August to October. Specific-conductance determinations made when samples are collected for bacterial analysis would indicate if any significant changes in overall chemical quality are occurring and if any more comprehensive analyses should be made.

Streamflow

The current streamflow-monitoring network in the basin consists of three gaging stations on Henrys Fork and staff gages on Henrys Lake and Island Park Reservoir. This network is adequate for water-use purposes and accurately defines the distribution and magnitude of flows in Henrys Fork. However, there is a real need for long-term information on water yields of subbasins. Installation of continuous-record stations is not warranted, but annual measurements at selected sites during low-flow periods would greatly increase knowledge of the distribution of water yields in the basin. Low-flow measurements at the following stations would provide valuable information: 13040500, Big Springs Creek at Big Springs; 13043000, Buffalo River at Island Park; 13044500, Warm River at Warm River; and 13045500, Robinson Creek at Warm River.

Surface-Water Quality

Specific-conductance and water-temperature data are routinely collected at the active stream-gaging sites in the basin. These data provide information on general surface-water quality in the main-stem Henrys Fork. If low-flow measurements are made at other sites in the future, the same data should be collected at each site. Periodic collection of samples for chemical analyses at the existing three main-stem gaging stations would help define changes in surface-water quality in the basin. Annual analyses of chemical constituents would presently be adequate for surveillance purposes, although more frequent analyses might be necessary if significant changes are detected.

SUMMARY

The upper Henrys Fork basin generally is sparsely populated. It has a permanent population of about 1,500. Ashton is the major population center. Considerable recreation-oriented development is occurring along Henrys Fork, its tributaries, and major reservoirs. This development has created a need for hydrologic information to properly manage the water resources in the basin. Surface water is stored in Henrys Lake and Island Park Reservoir for irrigation downstream from the basin. Ground water is used chiefly for municipal, domestic, and stock supplies. Only a few wells withdraw water for irrigation.

Volcanic rocks (both silicic and basaltic) and alluvium compose most of the aquifer materials in the basin. Permeable volcanic rocks, particularly in the eastern part of the basin, greatly influence water yields and ground-water movement between subbasins. Data suggest that movement across the basin boundary is minimal.

Mean annual precipitation on the basin is estimated to be about 35 in, of which about 50 percent contributes to the mean annual discharge in Henrys Fork, which is 1,441 ft^3/s, or about 18 in.

Annual mean discharge of streams in the basin generally varies directly with the annual mean precipitation. Precipitation, falling mostly as snow during late fall and winter, supplies recharge to the basin. Discharge in Henrys Fork near Ashton accounts for most of the basin's discharge, except for that amount lost to evapotranspiration. Changes occur in the annual streamflow-annual precipitation relation, most of which can be attributed to timing of seasonal precipitation and effects of evapotranspiration.

Water quality in the basin is generally excellent. Exceptions exist in areas of intermittent high usage by man and, in the Ashton area, where the effects of agricultural activities over a long period have influenced ground-water quality. Values for specific conductance range from less than 100 to about 300 μmhos in the water sampled, except for the Ashton area, where specific-conductance values as high as 800 μmhos were measured in the ground water.

Microbiological analyses, particularly for the surface water sampled, indicate man's influences on the area's water. Analyses of coliform bacteria in river water indicated increased concentrations during periods of greater use by man at selected sites in the basin.

Data on the major surface-water bodies, Henrys Lake and Island Park Reservoir, indicate characteristics of cold, monomictic (stagnation under ice cover in winter and circulation from water-density differences commencing with spring thaw) water bodies with periods of seasonal algal blooms. Springtime phytoplankton populations are diatoms and fall populations are blue-green algae, indicating eutrophic conditions. Whereas these two water bodies represent only their respective areas, they are believed also to be indicative of general conditions in minor water bodies in the basin. However, there are some exceptions.

Suggestions are presented for modification of monitoring networks in the basin. The networks include monitoring ground-water levels, ground-water quality, surface-water flow, and surface-water quality.

SELECTED REFERENCES

Cole, G. A., 1975, Textbook of limnology: St. Louis, The C. V. Mosby Co., 283 p.

Crosthwaite, E. G., Mundorff, M. J., and Walker, E. H., 1970, Ground-water aspects of the lower Henrys Fork region, eastern Idaho: U.S. Geol. Survey Water-Supply Paper 1879-C, 22 p.

Decker, S. O., and others, 1970, Miscellaneous streamflow measurements in Idaho, 1894-1967: U.S. Geol. Survey Basic-Data Release, 310 p.

Forsgren, Perkins and Associates, 1971, Comprehensive water and sewer plan for Fremont County: Fremont County Plan. Comm. rept., 98 p.

Fournier, R. O., and Rowe, J. J., 1966, Estimation of underground temperatures from the silica content of water from hot springs and wet steam wells: Am. Jour. Sci., v. 264, p. 685-695.

Fournier, R. O., and Truesdell, A. H., 1970, Chemical indicators of subsurface temperature applied to hot spring waters of Yellowstone National Park, Wyoming, U.S.A., Geothermics, Spec. Issue 2, v. 1, p. 529-535.

______ 1973, An empiricial Na-K-Ca geothermometer for natural waters: Geochim. et Cosmochim. Acta., v 73, p. 1255-1275.

Hamilton, Warren, 1960, Late Cenozoic tectonics and volcanism of the Yellowstone Region, Wyoming, Montana, and Idaho, in Billings Geological Society 11th Annual Field Conference, September 7-10, 1960, West Yellowstone earthquake area: p. 92-105.

______ 1965, Geology and petrogenesis of the Island Park caldera of rhyolite and basalt, eastern Idaho: U.S. Geol. Survey Prof. Paper 504-C, 37 p.

Hem, J.D., 1970, Study and interpretation of the chemical characteristics of natural water: U.S. Geol. Survey Water-Supply Paper 1473, 2d ed., 363 p.

Holte, K.E., and others, 1973, Environmental survey of the Teton River and Henrys Fork of the Snake River: Univ. of Idaho, Water Resources Research Inst., Tech. Completion Rept., U.S.C.E. no. 68-72-C-0210, 271 p.

Idaho Fish and Game Department, 1969, Aquatic life water needs in Idaho streams: Idaho Water Resource Board Plan. Rept. no. 3, 39 p.

Kirkham, V. R. D., 1927, A geologic reconnaissance of Clark and Jefferson and parts of Butte, Custer, Fremont, Lemhi, and Madison Counties, Idaho: Idaho Bur. Mines and Geology Pamph. 19, 47 p.

Long, C. L., 1975, Geophysical studies in the Island Park caldera, Idaho [Abs.]: Geol. Soc. Am. Bull., with Programs, v. 7, no. 5, 656 p.

Mansfield, G. R., 1932, Teton Reservoir and other dam sites, in Upper Snake River investigation: U.S. Geol. Survey Open-File Rept., p. 19-38.

Millipore Corporation, 1972, Biological analysis of water and waste water: Millipore Corp. Application Manual AM 302, 80 p.

Mundorff, M. J., Crosthwaite, E. G., and Kilburn, Chabot, 1964, Ground water for irrigation in the Snake River basin in Idaho: U.S. Geol. Survey Water-Supply Paper 1654, 224 p.

National Academy of Sciences and National Academy of Engineering, 1974: Washington, D.C., U.S. Govt. Printing Office, 594 p.

Peterson, D. L., and Witkind, I. J., 1975, Preliminary results of a gravity survey of the Henrys Lake quadrangle, Idaho and Montana: U.S. Geol. Survey Jour. Research, v. 3, no. 2, p. 223-228.

Riggs, H. C., 1969, Mean streamflow from discharge measurements: Internat. Assoc. Sci. Hydrology Bull., v. 14, no. 4, p. 95-110.

______ 1972, Low-flow investigations: U.S. Geol. Survey Techniques of Water Resources Inv. Book 4, Chap. D1, 18 p.

Ross, C. P., and Forrester, J. D., 1947, Geologic map of the State of Idaho: U.S. Geol. Survey, 1 sheet.

Speth, L. R., and others, 1971, Water quality study of the Island Park waterways: Dept. of Biol. Sci., Ricks College, Rexburg, Ida., 59 p.

Stearns, H. T., 1924, Report on the geology of the proposed reservoir, dam, and tunnel of the Dubois project at Island Park, Idaho: U.S. Geol. Survey Open-File Rept., 40 p.

______ 1928, Geology and water resources of the upper McKenzie Valley, Oregon: U.S. Gol. Survey Water-Supply Paper 597, 250 p.

Stearns, H. T., Bryan, L. L., and Crandall, Lynn, 1939, Geology and water resources of the Mud Lake region, Idaho, including the Island Park area: U.S. Geol. Survey Water-Supply Paper 818, 125 p.

Stearns, H. T., Crandall, Lynn, and Steward, W. G., 1936, Records of wells in the Snake River Plain, southeastern Idaho: U.S. Geol. Survey Water-Supply Paper 775, 139 p.

______ 1938, Geology and ground-water resources of the Snake River Plain in southeastern Idaho: U.S. Geol. Survey Water-Supply Paper 774, 268 p.

Stevlingson, D. J., and Everson, D. O., 1968, Spring and fall freezing temperatures in Idaho: Idaho Agr. Expt. Sta. Bull. 494, 19 p.

Thomas, C. A., Broom, H. C., and Cummans, J. E., 1963, Magnitude and frequency of floods in the United States; Part 13, Snake River basin: U.S. Geol. Survey Water-Supply Paper 1688, 250 p.

Thomasson, H. G., Olmsted, F. H., and LeRoux, E. F., 1960, Geology, water resources, and usable ground-water storage capacity of part of Solano County, California: U.S. Geol. Survey Water-Supply Paper 1464, 693 p.

Thornthwaite, C. W., 1948, An approach toward a rational classification of climate: Geog. Review, v. 38, p. 55-94.

Wetzel, R. G., 1975, Limnology: Philadelphia, W. B. Saunders Company, 743 p.

Witkind, I. J., 1972, Geologic map of the Henrys Lake quadrangle, Idaho and Montana: U.S. Geol. Survey Misc. Geol. Inv. Map I-781-A.

______ 1975, A proposed glacial history of the Henrys Lake basin, Idaho: U.S. Geol. Survey Jour. Research, v. 3, no. 1, p. 67-76.

______ 1976, Geologic map of the southern part of the upper Red Rock Lake quadrangle, southwestern Montana and adjacent Idaho: U.S. Geol. Survey Misc. Geol. Inv. Map I-943.

BASIC-DATA TABLES

BASIC-DATA TABLE A

SELECTED WELLS AND THEIR GEOHYDROLOGIC CHARACTERISTICS IN AND ADJACENT TO THE UPPER HENRYS FORK BASIN

Use of well: C - commercial; D - domestic; I - irrigation; P - public supply; R - reported by driller; U - unused.

Well no.	Owner	Date drilled	Diameter of casing (in)	Depth of casing (ft)	Depth of well (ft)	Use of well	Aquifer[1]	Altitude above mean sea level (ft): Land surface	Altitude above mean sea level (ft): Water surface	Depth to water below land surface (ft): Adjusted[2]	Depth to water below land surface (ft): Measured	Date of water-level measurement	Specific conductance (µmhos)
16N-42E-24cdc1	E. J. Steinke	9-28-74	16	186	186	I	111ALVM	6,610	6,575	35	34.78	9-10-75	--
25bcb1	Don Lockyer	8-08-73	6	59	100	D	112MFLS	6,625	6,570	55 R	--	--	--
16N-43E-31ccb1	Wright and Beam	7-21-70	6	30	80	D	112MFLS	6,520	6,475	45	44.63	9-10-75	233
32aac1	V. Dietrich	10-17-69	6	220	240	D	111ALVM	6,525	6,508	17	16.73	8-02-74	1,620
32daa1	W. B. Webb	?- ?-56	6	80	80	D	111ALVM	6,500	6,497	3	3.20	9-10-75	192
33cbc2	M. Brown	9-15-69	8	--	250	D	111ALVM	6,495	6,495	1	0.05	6-27-74	--
15N-42E-25aaa1	S. Magelby	8-27-71	8	40	162	D	112HKBR	6,590	6,493	97	96.72	9-10-75	232
15N-43E-02cdc1	O. J. Salisbury	?- ?-61	16	--	140	I	112ALVM	6,568	6,522	46	45.86	9-10-75	--
03abb1	O. J. Salisbury	9-21-60	6	104	104	D	112ALVM	6,518	6,434	84 R	--	--	--
11bca1	O. J. Salisbury	?- ?-60	16	140	Sounded 106.8	I, U	112OTSH	6,562	6,517	45	45.01	9-10-75	--
13bac1	D. F. Richards	12-27-60	6	178	213	D	112ALVM	6,760	6,710	50 R	--	--	--
13bca1	Van Gas Company	8-07-72	6	155	155	D	112ALVM	6,620	6,519	101	101.28	9-10-75	339
13bcb1	C. O. Bottien	?- ?-42	5	--	260	D, U	112ALVM	6,610	--	140 R	--	--	--
13cad1	O. J. Salisbury	10-05-60	6	164	164	D	112OTSH	6,625	6,513	112	112.35	8-05-75	294
20dcd1	R. M. Webster	8-05-68	6	39	177	D	112MFLS	6,578	6,425	153 R	--	--	--
21aab1	Island Park Water Company	8-25-70	8	184	289	P	112OTSH	6,500	6,441	59	58.94	9-10-75	308
21bad1	H. F. Andrew	7-25-69	6	50	80	D	112HKBR	6,495	6,460	35 R	--	--	--
22bbb1	Idaho Department of Parks	7-08-67	8	241	322	P	112OTSH	6,510	6,442	68	68.03	9-10-75	260
24aab1	O. J. Salisbury	11-15-60	6	180	202	D	112HKBR	6,625	6,530	95	94.53	9-11-75	240
26cdd1	O. K. Rasmussen	?- ?-39	5	--	60	D	112OTSH	6,470	6,441	29	28.93	9-11-75	256
15N-44E-06cda1	Randell-Bowen	7-07-73	8	26	300	P	112HKBR	6,920	6,695	225 R	--	--	--
31aac1	H. Davis	10-01-73	6	20	100	--	112HKBR	6,500	6,440	60	55.13	6-28-75	--
14N-43E-02aac1	C. Bollschweiler	7-14-66	6	19	125	D	112LVCK	6,516	6,430	86	86.43	9-11-75	--
02aad1	Island Park Water Company	8-07-67	6	18	70	P	112LVCK	6,488	6,428	60	60.19	9-11-75	121
02bcb1	Island Park Water Company	7-20-72	6	61	105	P	112LVCK	6,480	6,429	51	51.29	9-10-75	--
02cbc1	Island Park Water Company	--	6	--	90	P	112LVCK	6,466	6,426	40	40.04	9-10-75	--
13bba1	Unknown	--	1.5	--	--	D, U	112ALVM	6,428	6,417	11	11.11	9-11-75	--
17cca1	Morley Campbell	9-11-67	6	53	82	D	112VLCC	7,720	7,699	21 R	--	--	--
24dbd1	Mike Todd	10-16-74	8	56	145	I	112LVCK	6,431	6,401	30 R	--	--	--
24dca1	R. Wuthrith	?- ?-59	6	--	38	D	112LVCK	6,428	6,406	22	22.32	9-11-74	59
25bab1	Idaho Dept. of Transportation	7-09-70	8	17	138	D	112LVCK	6,464	6,390	74	73.99	9-11-74	76
34dcb1	U.S. Forest Service	9-26-64	6	83	104	P	112LVCK	6,415	6,340	75	74.82	9-11-75	59
35adb1	U.S. Forest Service	7-19-72	8	99	119	P	112LVCK	6,425	6,372	53	53.13	9-11-75	--

36aca1	Ted Hopkins	7-31-68	6	38	75	D	112LVCK	6,400	6,370	30 R	--	--	--
36bbc1	J. Trebilcock	6-13-70	6	19	42	D	112LVCK	6,400	6,387	13 R	--	--	--
36bdb1	Gellings	--	18	--	--	--	112LVCK	6,408	6,373	35	35.45	9-16-75	--
36ccb1	R. Thompson	6-01-70	6	88	88	D	112LVCK	6,428	6,373	55	54.66	9-08-75	--
36dbd1	A. Rammel	7-26-69	6	39	75	--	112LVCK	6,410	6,372	38	37.62	9-16-75	--
14N-44E-05bba1	J. Momberger	7-22-71	6	55	80	D	112LVCK	6,460	6,430	30	26.66	6-28-75	--
17cba1	R. Orme	1-01-47	6	65	65	--	112ALVM	6,414	6,404	10	10.35	6-29-75	--
30aac1	J. Green	9-18-62	6	62	62	D	112ALVM	6,420	6,399	21	20.89	9-11-75	146
30aac2	W. Knudson	8-06-73	6	57	57	D	112ALVM	6,424	6,401	23	22.51	9-11-75	--
33adc1	S. A. Brady	10-01-50	6	--	89	D	112PLTU	6,390	6,390	--	--	--	--
33bda1	W. A. Browning	7-07-63	6	65	65	D	112ALVM	6,390	6,372	18 R	--	--	--
33bdb1	C. T. Stonehawker	9-06-56	6	65	65	D	112ALVM	6,390	6,380	10 R	--	--	--
34bcd1	U. S. Forest Service	7-03-61	7	85	85	P	112PLTU	6,410	6,411	1	+1.11	--	113
13N-40E-13ada1	Sheridan Ranch	--	6	--	--	D	112ALVM	6,432	6,415	17	17.45	9-10-75	--
30cac1	U.S. Dept. of Agri.	--	--	--	--	D, U	111SKRV	6,408	6,378	30	30.21	9-10-75	--
30cac2	U.S. Dept. of Agri.	Approx. 1956	--	--	--	D	111SKRV	6,408	--	--	--	--	159
13N-41E-08bca1	MC Ranch	7-29-69	6	56	85	D	111SKRV	6,504	6,468	36	35.85	9-10-75	--
15aad1	O-E Ranch	7-27-67	8	4	126	D	111SKRV	6,497	6,397	100	99.70	9-10-75	201
13N-42E-01abb1	Verl D. Godwin	9-01-75	6	18	328	D	112VLCC 112HKBR	6,670	6,605	65 R	--	--	--
01abb2	Robert B. Hill	9-12-75	6	18	398	D	112VLCC	6,780	6,603	177 R	--	--	--
01abc1	D. Nowatzki	1-01-71	6	39	349	D	112HKBR	6,640	6,570	70	69.33	8-01-75	--
01cbc1	Hansen-Wirkleys	8-01-71	--	90	200	--	112ALVM	6,535	6,445	90 R	--	--	--
01ccc1	Unknown	--	--	--	--	--	112ALVM	6,465	6,454	11	11.39	8-07-75	--
01ccd1	Unknown	--	--	--	--	--	112ALVM	6,478	6,458	16	16.45	8-07-75	--
12acb1	Island Park Water Company	8-02-68	6	52	80	P	112ALVM	6,390	6,377	13	13.18	9-11-75	65
12bab1	Island Park Water Company	10-23-70	6	100	100	P	112ALVM	6,435	6,385	50	45.08	8-06-75	--
12bca1	Island Park Water Company	6-25-70	6	48	55	--	112ALVM 112LVCK	6,402	6,390	12	8.33	7-22-75	--
12cba1	Island Park Water Company	7-07-72	6	67	85	P	112HKBR	6,402	6,386	16	15.81	9-11-75	62
24abb1	Leo Sommerville	6-23-70	6	44	118	D	112LVCK	6,358	6,318	40 R	--	--	--
24dcc1	Jay S. Winter	9-22-70	6	67	97	D	112LVCK	6,332	6,287	45 R	--	--	--
13N-43E-04bca1	Coffee Pot Lodge	9-01-59	6	45	52	D	112LVCK	6,330	6,299	31 R	--	--	--
08dad1	U.S. Forest Service	8-10-66	10	101	100	D	112LVCK	6,328	6,316	12 R	--	--	--
11cda1	Twin Buttes Construction	1-01-66	--	--	--	--	112LVCK	6,323	6,302	21	20.73	9-16-75	--
15adc1	V. Zollinger	4-01-62	6	38	58	C	112LVCK	6,300	6,284	16	16.14	9-11-75	74
15dad1	V. Zollinger	11-02-74	6	45	60	D	112LVCK 112ALVM	6,292	6,286	6	5.64	7-09-75	65
16bca1	W. W. Randolph, Jr.	9-29-23	6	18	105	D	112LVCK 112ALVM	6,345	6,289	56 R	--	--	--
17acc1	McCrea Ranch	7-16-68	6	29	65	D	112LVCK	6,308	6,304	4 R	--	--	--
22abc1	U.S. Forest Service	--	--	--	--	--	112LVCK 112ALVM	6,300	--	--	--	Plugged	--
23aba1	Island Park Water Company	9-20-73	6	44	75	P	112LVCK	6,292	6,288	4	3.62	9-11-75	106
27abc1	U.S. Forest Service	--	10	--	100	P	112GRRT	6,294	6,282	12	11.74	9-11-75	135
27bcd1	Pond's Lodge	7- ?-38	6	86	86	C	112GRRT	6,290	--	--	--	--	--
27bcd2	Pond's Lodge	--	6	30	40	C	112GRRT	6,290	6,284	6	5.94	9-11-75	--
27bcd3	Pond's Lodge	--	8	33	82	C	112GRRT	6,290	--	--	5.38	7-24-69	--
27bda1	U.S. Forest Service	--	--	--	--	U	112GRRT	6,290	--	--	--	--	--
28cca1	U.S.B.R.	1-01-35	--	--	--	--	112MFLS	6,284	--	--	28.15	7-31-75	--
30bcd1	Rexburg Boat Club	7-17-70	12	93	193	D	112LVCK	6,310	6,295	15 R	--	--	--
33cbb1	U.S. Forest Service	9- ?-64	6	118	118	P	112GRRT	6,280	6,203	77	77.30	9-11-75	--
34bbb1	A. L. Odem	7-22-71	6	62	140	D	112GRRT	6,292	6,237	55 R	--	--	--

Basic-Data Table A *(continued)*

Well no.	Owner	Date drilled	Diameter of casing (in)	Depth of casing (ft)	Depth of well (ft)	Use of well	Aquifer[1]	Altitude above mean sea level (ft): Land surface	Altitude above mean sea level (ft): Water surface	Depth to water below land surface (ft): Adjusted[2]	Depth to water below land surface (ft): Measured	Date of water-level measurement	Specific conductance (μmhos)
13N-43E-34bcc1	Don Wilson	7-03-71	6	69	124	D	112GRRT, 112ALVM	6,282	6,224	58 R	--	--	--
13N-44E-04adb1	A. Fransen	9-24-67	6	--	92	D	112LVCK	6,412	6,408	4	3.70	8-05-75	--
05acd1	Smith	--	--	--	--	--	112ALVM	6,391	6,386	5	4.70	9-11-75	--
05dac1	L. N. Nalder	9-02-67	6	--	50	D	112ALVM, 112LVCK	6,394	6,382	12 R	--	--	--
05dac2	Swensen	9-02-67	6	--	55	D	112ALVM, 112LVCK	6,394	6,382	12 R	--	--	--
10bba1	O. Mabey	9-25-71	6	18	45	D	112LVCK	6,434	6,410	24	23.50	9-11-75	--
12N-39E-01dba1	MC Ranch	--	6	--	196	D	111SKRV	6,408	6,359	49	48.85	6-26-74	139
12cdb1	MC Ranch	--	6	--	--	D	111SKRV	6,397	6,311	86	86.37	9-10-75	156
24dda1	A. Laird	--	6	--	226	D	111SKRV	6,447	6,257	190 R	--	6-?-22	172
12N-40E-05ddd1	MC Ranch	--	6	120	132	D	111SKRV	6,478	6,388	90	--	--	123
10aca1	MC Ranch	--	6	10	85	D	111SKRV	6,530	6,480	50	--	--	157
11cad1	U.S. Forest Service	Deepened 10-01-71	6	--	283	D	111SKRV	6,555	6,348	207	207.32	9-10-75	159
17abc1	MC Ranch	Prior 1921	6	20	230	D	111SKRV	6,488	6,328	160	159.42	6-12-75	123
23acd1	U.S. Forest Service	--	36	--	15	D	111SKRV	6,655	6,651	4	4.26	9-10-75	185
25ccb1	U.S. Forest Service	--	36	--	17	D	111SKRV	6,703	6,698	5	5.45	9-10-75	99
36dcc1	U.S. Forest Service	?-?-59	6	50	300	D	111SKRV	6,795	6,550	245 R	--	--	166
12N-41E-07bad1	U.S. Forest Service	?-?-40	6	170	190	D	111SKRV	6,475	6,316	159	158.60	9-10-75	145
12N-42E-17bda1	U.S. Forest Service	8-24-64	6	82	82	P	112LVCK	6,343	6,290	53 R	53.14	9-11-75	122
18cdb1	U.S. Forest Service	?-?-41	42	--	18	D	111ALVM	6,399	6,397	2	1.55	9-11-75	56
26caa1	Railroad Ranch	Prior 1921	--	--	85	--	112GRRT, 112ALVM	6,120	6,105	15	--	--	--
12N-43E-08cca1	D. Sutton	8-01-68	6	--	--	D	112GRRT	6,178	6,154		23.85	8-06-75	--
08dba1	Young	--	--	--	--	D	112GRRT	6,180	6,159	21	20.84	9-16-75	--
08dcc1	R. Whitaker	--	--	--	--	D	112ALVM	6,152	--	--	--	--	101
08dda1	C. Highams	--	--	--	--	D	112GRRT	6,170	6,166	4 R	3.50	9-16-75	--
17acd1	W. Godfrey	--	--	--	--	D	112GRRT	6,158	--	--	--	--	167
17adc1	V. Nelson	6-17-66	6	25	50	D	112GRRT, 112ALVM	6,158	6,141	17 R	--	--	99
17cdd1	R. Hall (V. Hansen)	8-26-69	6	21	50	D	112ALVM	6,147	6,141	6	6.00	9-14-75	129
17dab1	Mueller	11-04-70	6	27	67	D	112GRRT, 112ALVM	6,160	6,138	22	--	--	145
17dba1	Alpenhaus Motel	6-02-65	6	21	65	C	112GRRT, 112ALVM	6,155	6,148	7	7.28	9-16-75	165
17dba2	R. Siglin	9-16-61	6	37	74	D	112GRRT	6,153	6,142	11 R	--	--	148
17dba4	R. Caldwell	--	6	--	140 R	C	112GRRT	6,153	--	--	--	--	168
17dca1	C. Frickey	1-01-71	6	31	60	D	112GRRT, 112ALVM	6,160	6,151	9	8.68	9-14-75	162

17dcc1	Andrew Drillers	8-12-74	6	37	65	D	112GRRT	6,149	6,139	10 R	--	--	--
12N-44E-06dda1	I.P. Enterprises	8-24-69	6	55	62	D	112GRRT 112ALVM	6,305	6,290	15	14.80	9-11-75	--
08baa1	B. South	7-31-71	6	21	50	D	112GRRT 112ALVM	6,314	6,305	9	8.89	9-11-75	52
20adb1	E. R. Ekins	?-?-69	6	40 R	105	U	112GRRT	6,280	6,215	65	64.87	9-11-75	104
20adb2	E. R. Ekins	--	18	16	16	D	112ALVM	6,280	6,270	10	10 R	--	38
11N-41E-07cba1	U.S. Forest Service	?-?-40	72	8	9	D	111SKRV	6,765	6,761	4	3.92	9-10-75	54
11N-42E-11dad1	J. Thomas	6-21-66	6	18	80	D	112GRRT	6,116	6,079	37	36.75	9-11-75	124
11dad2	Pinehaven Potter	--	--	--	--	D	112GRRT	6,129	6,093	36	35.50	9-11-75	90
12bcd1	Daley	9-07-67	6	18	82	D	112GRRT	6,112	6,074	38	38.44	9-16-75	--
14aad1	Unknown	--	--	--	--	--	112GRRT	6,124	6,084	40	39.67	9-16-75	--
14ddc1	U.S. Forest Service	10-26-23	6	20	101	T	112LVCK	6,082	<5,980	101	--	--	--
23daa1	U.S. Forest Service	--	6	--	--	P	112LVCK	6,084	6,003	81	80.93	9-11-75	119
29dcd1	U.S. Forest Service	?-?-35	4	45	36	D	111ALVM	6,310	6,306	4	3.77	9-10-75	--
11N-43E-05cab1	U.S. Forest Service	11-27-23	6	--	100	T	112GRRT	6,131	6,129	2 R	--	--	--
07dcc1	U.S. Forest Service	12-21-23	6	--	130	T	112GRRT	6,166	6 051	115 R	--	--	--
10N-42E-03cbc1	U.S. Forest Service	6- ?-16	36	6	6	D	112GRRT	6,236	6,233	3	3.44	9-10-75	--
24aba1	U.S. Forest Service	--	6	--	220	D	112GRRT	6,170	5,965	205	205.05	9-11-75	--
10N-43E-33aad1	U.S. Forest Service	--	6	122	122	D	112MFLS	5,926	5,899	27	26.98	9-11-75	--
10N-44E-09bcb1	Crapo Brothers	--	6	--	74	U	112GRRT	5,960	5,939	21	21.49	9-11-75	164
9N-41E-17aba1	Verl Arnold	6-7-74	6	415	391	D	112SKRV	5,330	4,980	350 R	--	--	--
9N-42E-11dcd1	H. Seeley	--	6	--	--	D	112HKBR	5,210	--	65 R	--	11-06-75	483
12dca1	D. Green	--	12	44	300 R	D, I	112HKBR	5,390	5,210	180	Pumping 184.35	9-12-75	257
14abd1	H. Hull	--	6	--	--	--	112HKBR	5,195	5,171	24	24.32	9-14-75	157
18abc1	R. Dixon	?-?-02	Hand dug	35	35	--	112ALVM	5,277	5,272	5	5.26	9-12-75	130
20ccd1	G. Nedrow	11-20-74	6	--	206	D	112HKBR	5,195	5,173	22	22.24	9-12-75	341
23aac1	L. Egbert	1-01-35	6	--	--	--	112FLRV	5,200	5,169	31	31.31	7-02-75	--
23dda1	L. Jensen	8-29-72	4	46	85	D	112FLRV	5,204	5,198	6	5.63	9-13-75	478
24acc1	L.D.S. Church	?-?-60	5	--	--	--	112FLRV	5,224	5,212	12	11.93	9-15-75	503
25dad1	Louise Chambers	1-01-48	12	5	98	--	112FLRV	5,266.8	5,266	11 R	--	--	--
26cdc1	D. Hossner	6-30-69	6	--	--	--	112FLRV	5,218	5,212	6	6.11	9-12-75	439
27acc1	Steve Davis	1-29-62	--	--	638	Drain	112FLRV	5,200	5,185	15[3]	--	--	--
32cba1	A. Nedrow	1-01-25	--	36	45	--	111SKRV	5,112	5,099	13	12.62	9-12-75	282
33bbb1	M. Reynolds	?-?-67	6	106	143	D	112HKBR	5,169	5,144	25	25.45	9-12-75	416
34dcc1	H. E. Hess	3-01-61	16	5	130	I	112FLRV	5,212	5,199	13 R	--	--	--
34dda1	B. Hedrick	11-11-58	16	7	110	I	112FLRV	5,228	5,218	10	10.23	9-12-75	--
35cca1	D. Hess	10- ?-67	12	--	--	I	112FLRV	5,231	5,226	5	5.14	6-29-75	348
35cdc1	R. Hess	10-01-62	12	--	60	I	112FLRV	5,230	5,229	1	0.60	9-12-75	416
35dbb1	Id. Dept. of Hwys.-R. Rest.	--	--	--	--	P	112FLRV	--	--	--	--	9-10-75	426
35ddc1	L. Rich	?-?-63	6	--	105	--	112FLRV	5,253	5,238	15	14.83	6-30-75	404
36aba1	City of Ashton	--	12	--	289	P	112FLRV	5,272	--	--	26.67	7-20-59	--
36aba2	City of Ashton	4-01-48	14	--	--	P	112FLRV 112HKBR	5,272	5,244	28 R	--	--	--
36daa1	I. Harrigfeld	?-?-52	6	--	--	--	112FLRV	5,282	5,268	14	14.33	9-12-75	444
9N-43E-18cba1	R. Trapp	--	6	--	--	--	112HKBR	5,233	5,204	29	28.99	9-12-75	407
19cdb1	T. Angell	6-30-71	6/4	20/51	127	D	112HKBR	5,264	5,248	16	15.80	9-12-75	400
19cdb2	Unknown	old	6	--	25	U	112FLRV	5,265	5,250	15	14.80	9-12-75	--
21ccc1	G. Egbert	8-15-69	6	36	156	D	112HKBR 112FLRV	5,395	5,319	76	75.98	9-15-75	705
22bdc1	G. Smith	6-21-72	6	163	302	D	112HKBR	5,490	5,300	190	190.24	9-15-75	433

Basic-Data Table A *(continued)*

Well no.	Owner	Date drilled	Diameter of casing (in)	Depth of casing (ft)	Depth of well (ft)	Use of well	Aquifer[1]	Altitude above mean sea level (ft) Land surface	Altitude above mean sea level (ft) Water surface	Depth to water below land surface (ft) Adjusted[2]	Depth to water below land surface (ft) Measured	Date of water-level measurement	Specific conductance (µmhos)
9N-44E-22cdc1	J. Marotz	1-01-25	--	225	225	--	112HKBR	5,493	5,443	50	54.47	7-01-75	546
23aab1	J. Howell	8-16-72	6	188	342	D	112HKBR	5,526	5,345	181	172.10	6-24-75	483
25aaa1	G. Marotz	old	6	170	--	D	112HKBR	5,610	5,485	125	127.65	8-07-74	382
25aaa2	Don Marotz	8-13-75	6	149	218	D	112HKBR	5,622	5,484	138 R	--	--	382
26abb1	G. Bahr	old	4	>200	--	D	112HKBR	5,587	5,404	183	186.00	8-08-74	807
28acc1	W. Winters	?-?-40	6	--	--	--	112FLRV	5,385	5,377	8	11.11	7-01-75	--
28dac1	W. Winters	5-12-73	6	32	198	D	112FLRV	5,448	5,325	123	122.68	9-15-75	346
29dcc1	C. Smith	8-28-72	6	122	122	D	112FLRV	5,344	5,285	59	59.21	9-15-75	405
30cca1	N. Hillam	6-20-67	16	8	130	I	112HKBR	5,285	5,263	22	22.12	6-24-75	--
30ccc1	Ashton Cemetery	?-?-15	6	--	69	I	112FLRV	5,280	5,268	12	11.82	9-12-75	--
30ccc2	Ashton Cemetery	Fall - 56	10	13	73	U	112FLRV	5,280	5,268	12	11.98	11-15-56	422
30dad1	M. Case	?-?-10	--	--	92	--	112FLRV	5,298	5,278	20	20.76	7-01-75	--
31dcd1	F. Crouch	7-04-56	6	13	58	D	112FLRV	5,301	5,273	28	27.67	9-15-75	355
32cbc1	F. Harrigfeld	?-?-68	6	--	97	--	112FLRV	5,301	5,298	4	4.60	7-01-75	--
33ccc1	Larry Daniels	9-24-74	6	38	102	D	112FLRV	5,342	5,287	55 R	--	--	--
34daa1	E. Kirkham	1-01-30	--	--	104	--	112FLRV	5,527	5,450	77	77.46	9-12-75	838
35aab1	P. Atchley	1-01-14	--	--	32	--	112FLRV	5,501	5,488	13	13.17	6-27-75	488
9N-44E-08cda1	N. Stephens	7-21-72	6	152	410	D	112HKBR	5,574	5,374	200	199.57	9-14-75	391
15dcb1	Potpourri Ranch	6-28-72	8	160	340	D	112HKBR	5,680	5,554	126 R	--	6-?-72	--
20bbc1	D. Reimann	old	6	--	>50	D	112FLRV	5,582	5,545	37	37.47	9-15-75	--
21aad1	J. Marotz	old	6	--	137	U	112FLRV	5,660	5,571	89	89.27	9-12-75	--
27cbc1	Stegilmier Bros.	12-?-61	20	44	385	D	112FLRV	5,712	--	--	--	--	278
27cbc2	Stegilmier Bros.	1-01-40	5	--	--	--	112FLRV	5,712	5,612	99	99.04	9-12-75	271
29aaa1	P. Grube	1-01-50	6	--	84	--	112FLRV	5,641	5,605	36	35.55	9-12-75	408
29caa1	L. Stegilmier	1-01-40	6	--	165	--	112FLRV	5,632	5,567	65	65.30	6-30-75	--
30cbb1	E. Kuehl	11-29-67	8	168	180	D	112FLRV	5,650	5,524	126	125.74	9-15-75	780
30daa1	V. Marotz	--	6	--	260	D	112FLRV	5,652	5,529	123	122.85	9-15-75	830
31bbb1	A. Atchley	?-?-27	6	290	290	--	112FLRV	5,630	5,614	16	15.94	9-15-75	616
33dad1	E. Griffel	?-?-57	6	85	130	D	112FLRV	5.710	5,680	30	30.45	9-15-75	397
34bba1	E. Griffel	1970 or '71	12	--	34	U	112ALVM	5,598	5,593	5	5.49	9-12-75	397
8N-42E-02ada1	Leon Martindale	--	6	--	--	--	112FLRV	--	--	--	--	--	--
03bab1	Id. Dept. of Fish & Game	1-01-40	6	--	82	--	112FLRV	5,189	5,186	3	3.12	6-30-75	333
03cbb1	W. Green	6-?-64	6	--	--	--	112FLRV	5,221	5,191	30	30.34	6-30-75	--
04aaa1	Larue Fransen	10-30-69	6	--	240	--	112HKBR	5,190	5,145	45 R	--	--	--
05bcd1	Dan Reynolds	9-23-74	6	24.5	82	--	112HKBR	5,322	5,282	40 R	--	--	--
06adb1	Jimmey Nedrow	1-17-62	16	30	255	--	112ALVM	5,085	5,060	25 R	--	--	--
08bcc1	Lynn Looslie	--	6	--	--	--	112FLRV	5,112	5,109	3	--	--	--
09bab1	Wayne Lords	12-05-74	6	18	173	D	112HKBR	5,200	5,140	60 R	--	--	--
10bab1	J. Weerts	?-?-20	6	--	105	--	112HKBR	5,240	5,218	22	22.08	6-30-75	--
11ddd1	Aspen Acres Golf	old	6	--	--	--	112FLRV	5,295	5,275	20 R	20.00	9-15-75	--
8N-43E-01ddb1	A. Anderson	7-?-54	6	52	266	I	112HKBR	5,610	5,428	182	181.54	8-08-74	412

01ddd1	Art Anderson	8-10-72	8	258	340	--	112HKBR	5,610	5,433	177 R	--	--	--
03dcc1	Unknown	old	--	--	87	D	112FLRV	5,426	5,404	22	22.40	9-12-74	--
05dda1	Unknown	old	6	--	48	D	112HKBR	5,298	5,273	25	24.49	9-12-74	229
06baa1	K. Looslie	10-01-74	6	--	62	D	112FLRV	5,295	5,265	30	30.78	6-29-75	--
11ccc1	L. Anderson	old	6	--	115	D	112HKBR	5,503	5,439	64	63.67	9-15-75	--
18abd1	Kevin Rigby	9-25-74	6	18	102	D	112HKBR	5,245	5,195	50 R	--	--	--
18cdd1	Curtis Looslie	9-19-74	6	40	122	D	112HKBR	5,360	5,262	98 R	--	--	--
8N-44E-05bbb1	Squirrel Cemetery	1-03-73	6	--	232	I	112FLRV	5,620	5,483	137	137.39	9-13-75	429

[1] 111ALVM, 112ALVM: Alluvium and glacial material

112QTSH: Outwash material; gravel, sand, silt, and clay

112HKBR, 112MFLS, 112LVCK, 112PLTU, 112VLCC: Rhyolitic flows and tuffs

111SKRV, 112GRRT, 112FLRV: Basalt

[2] Adjusted and rounded to be representative of September 1975 conditions.

[3] Water stood near surface until about 630 feet while drilling; then it dropped to about 15 feet below land surface. Reported will take 5 gal/d.

BASIC-DATA TABLE B

SELECTED STREAM- AND SPRING-MEASURING SITES, SELECTED CHARACTERISTICS, AND PERIOD OF RECORD IN THE UPPER HENRYS FORK BASIN

(Miscellaneous measuring sites, except where noted otherwise.)

Station no.	Station name	Surface drainage area (mi^2)	Altitude above mean sea level (ft)		Period of record	Remarks
			At site	Mean of area		
13038600	Hope Creek above diversion near Macks Inn	1.21	6,580	7,560	1974-75	
13038605	Duck Creek near Macks Inn	11.4	6,590	7,510	1974-75	
13038630	Duck Creek at highway near Lake	16.3	6,542	7,850	1904; 1924; 1929-31; 1954-67; 1974	Nonrecording gage, July 1957 to August 1966.
13038650	Johnson Springs near Lake				1904, 1959-65	
13038660	Kelly Creek near Macks Inn	1.91	6,542	7,450	1974-75	
13038700	Timber Creek near Lake	--	--	--	1974	
13038750	Timber Creek at mouth near Lake	10.1	6,480	7,230	1974-75	
13038900	Targhee Creek near Macks Inn	20.8	6,604	8,300	1904; 1924; 1929-34; 1962; 1963	Crest-stage gage 1963 to present (1975).
13038910	Howard Creek near Lake	2.39	6,770	7,320	1974-75	
13038950	Howard Creek near Macks Inn	6.29	6,620	7,330	1904; 1924; 1929-30; 1974-75	
13039000	Henrys Lake near Lake	--	6,472	--	1923	Nonrecording gage.
13039500	Henrys Fork near Lake	93.6	6,450	7,540	1920	Water-stage recorder (prior to Oct. 1929, records for irrigation season only).
13039520	Tygee (or Dry Creek) near Henrys Lake	7.20	6,472	7,420	1922-23; 1930	
13039525	Henrys Fork at highway near Valley View	--	6,458	--	1975	
13039550	Bootjack Creek near Macks Inn	5.13	6,470	7,160	1974	
13039610	West Twin Creek near Lake }	2.77	6,485	7,330	1904; 1924; 1974-75	
13039620	East Twin Creek near Lake }		6,490	7,330	1904; 1924; 1974-75	
13039630	Henrys Fork below highway bridge near Lake				1924	
13039650	Jesse Creek near Macks Inn	3.52	6,470	7,460	1904; 1974-75	
13039670	Garner Spring near Macks Inn				1904	
13039700	Canyon Creek near Macks Inn	3.58	6,460	7,290	1904	
13039750	Pine Creek near Macks Inn	.75	6,427	6,630	1904	
13039770	Stevens (Stephen) Creek near Macks Inn				1924	
13039800	Reas Pass Creek near Macks Inn	11.3	6,440	7,290	1974-75	
13039899	Meadow Creek Springs	--	6,420	--	1974	
13039900	Meadow Creek near Macks Inn				1904; 1924	
13040000	Henrys Fork near Big Springs	168	6,409	7,320	1903; 1924; 1932; 1974-75	Nonrecording gage, 1932.
13040500	Big Springs Creek at Big Springs	--	6,390	--	1922; 1924-28; 1931; 1946-50; 1959-65; 1967; 1972; 1975	Nonrecording gage, 1924-25.
13040600	Thirsty Creek at Big Springs	46.0	6,408	7,920	1924-25; 1974-75	
13040800	Moose Creek near Big Springs	20.0	6,390	6,830	1924-25; 1928; 1974-75	

13040900	Henrys Fork at Macks Inn	--	--	--	--	
13040920	Henrys Fork at Flat Rock Campground at Macks Inn				1975	
13040940	Henrys Fork at Upper Coffee Pot Campground near Macks Inn				1975	
13040960	Henrys Fork above Coffee Pot Rapids near Macks Inn				1975	
13041000	Henrys Fork at Coffee Pot Rapids near Island Park	259	6,319	6,720	1935-40	Water-stage recorder.
13041010	Henrys Fork at Coffee Pot Lodge near Island Park	261	6,316	6,860	1974-75	
13041020	Henrys Fork above reservoir near Island Park	263	6,305	6,490	1974-75	
13041100	Mill Creek near Island Park	1.07	6,340	6,560	1974-75	
13041195	Sheep Creek above Sheep Creek Reservoir	4.05	6,375	6,760	1974-75	
13041200	Dry Creek near Island Park	7.52	6,362	6,830	1974-75	
13041300	Sheep Creek below Sheep Creek Reservoir	12.5	6,335	6,430	1974-75	
13041350	Hotel Creek near Island Park	14.8	6,350	7,750	1974-75	
13041400	Sheridan Creek above Sheridan Reservoir	--	6,500	--	1941-67	
13041401	Sheridan Creek at A2 road near Island Park (Includes sites 13041402-06)	15.3	6,485	7,190	1974-75	
13041490	Sheridan Creek at county hwy. near Kilgore				1941; 1943-67	
13041492	Taylor Creek near Island Park	7.00	6,600	7,730	1974-75	
13041495	Schneider Creek near Island Park	4.53	6,630	7,520	1974-75	
13041496	Myers Creek near Island Park	3.71	6,332	7,250	1974-75	
13041497	Willow Creek near Island Park	9.32	6,340	7,580	1974-75	
13041500	Sheridan Creek near Island Park	109	6,320	--	1935-40; 1975	Water-stage recorder, 1935-40.
13041550	Icehouse Creek at upper road near Island Park (Includes 13041451-52)	.65	6,630	7,100	1974-75	
13041600	Icehouse Creek near Island Park	7.60	6,333	6,580	1974-75	
13041700	Sheridan Creek near Island Park				1932	
13041800	Moose Springs near Island Park				1932	
13041900	Sheridan or Shotgun Creek at Trude's Bridge near Island Park				1904	
13042000	Island Park Reservoir near Island Park	--	6,302	--	1938	Electric-tape gage, read daily.
13042500	Henrys Fork near Island Park	488	6,225	7,080	1933	Water-stage recorder.
13042740	Chick Creek at mouth near Island Park	6.77	6,360	6,640	1974-75	
13042745	Buffalo River Spring No. 1 at mouth of Chick Creek	--	6,370	--	1974	
13042760	Buffalo River at mouth of Chick Creek	--	6,368	--	1974	
13042850	Elk Creek at Island Park	8.47	6,278	6,350	1974-75	
13042890	North channel Split Creek near Island Park	16.9	6,375	7,650	1974-75	
13042900	Toms Creek near Island Park	29.6	6,278	6,350	1904; 1974-75	
13043000	Buffalo River at Island Park	59.1	6,280	6,400	1935-41; 1974-75	Water-stage recorder, 1935-41.
13043500	Henrys Fork at DeWiner's Ranch near Island Park	--	6,160	--	1935-40; 1975	Water-stage recorder, 1935-40.
13043510	Blue Spring Creek near Island Park	--	6,150	--	1904; 1975	
13043520	Island Park Land and Livestock Co.'s canal near Island Park	--	6,143	--	1924; 1975	
13043530	Henrys Fork below canal near Island Park	--	6,140	--	1975	
13043600	Henrys Fork near Osborne Bridge	--	6,120	--	1931; 1975	
13043700	West Thurmon Creek near Island Park	.65	6,138	6,340	1974-75	
13043720	Middle Thurmon Creek near Island Park	.31	6,147	6,400	1974-75	
13043740	East Thurmon Creek near Island Park	1.70	6,138	6,230	1974-75	
13043780	Silver Lake outlet near Island Park	--	6,119	--	1975	
13043800	Henrys Fork at Osborne Bridge	602	6,102	--	1974-75	
13043850	Osborne Springs	--	6,129	--	1974	
13043900	Henrys Fork near Warm River	--	5,640	--	1932	
13044000	Henrys Fork at Warm River	728	5,257	6,860	1910-15; 1918-52; 1974-75	Nonrecording gage prior to June 29, 1923. Water-stage recorder, June 29, 1923, to 1952.

Basic-Data Table B *(continued)*

Station no.	Station name	Surface drainage area (mi^2)	Altitude above mean sea level (ft): At site	Altitude above mean sea level (ft): Mean of area	Period of record	Remarks
13044100	South channel Split Creek near Island Park	16.9	6,375	7,640	1974-75	
13044101	South channel Split Creek above diversion near Island Park	--	6,364	--	1974	
13044102	Diversion from south channel Split Creek near Island Park	--	6,360	--	1974	
13044110	Warm River Boy Scout camp diversion canal	--	6,306	--	1975	
13044112	Warm River at Boy Scout camp near Island Park	--	6,298	--	1975	
13044120	Warm River near Boy Scout camp near Island Park	--	6,253	--	1975	
13044122	Warm River at Eccles	--	6,226	--	1975	
13044130	Warm River at Pineview	--	6,123	--	1975	
13044134	Pineview Campground Springs	--	6,120	--	1975	
13044160	Partridge Creek near Pineview	30.8	6,107	7,240	1974-75	
13044166	Partridge Creek at mouth	--	6,062	--	1975	
13044170	Warm River below mouth of Partridge Creek	--	6,043	--	1975	
13044200	Warm River above fish hatchery near Warm River	120	5,770	--	1974-75	
13044250	Warm River Springs near Warm River	--	5,915	--	1974-75	
13044300	Warm River below fish hatchery near Warm River	123	5,760	--	1974-75	
13044320	Moose Creek near Warm River	7.52	5,858	6,750	1974-75	
13044500	Warm River at Warm River	145	5,282	6,830	1903; 1912-15; 1918-32; 1974-75	Nonrecording gage, 1912-15 and 1918-32.
13044600	Snow Creek near Warm River	13.8	5,900	7,110	1974-75	
13044980	Rock Creek above Wyoming Creek	6.55	6,020	6,360	1974-75	
13044990	Wyoming Creek near Ashton	9.47	6,228	6,400	1974-75	
13045000	Wyoming Creek near Ashton	10.2	5,915	6,320	1931-32	Nonrecording gage.
13045100	Rock Creek above Shaeter Creek	22.9	5,720	6,280	1974-75	
13045200	Porcupine Creek below Rising Creek	9.38	5,600	6,010	1974-75	
13045400	Fish Creek near Warm River	16.1	5,642	6,630	1974-75	
13045500	Robinson Creek at Warm River	126	5,280	6,090	1912-14; 1918-32; 1974-75	Nonrecording gage, 1912-15 and 1918-32.
13045510	Warm River at mouth	--	5,260	--	1975	
13045600	Henrys Fork below mouth of Warm River	1,000	5,265	--	1974-75	
13045700	Blue Creek near Warm River	3.60	5,262	--	1974-75	
13045796	Henrys Fork above Ashton Reservoir	--	5,160	--	1975	
13045800	Unnamed Creek No. 1 near Ashton	1.38	5,190	5,660	1974	
13045850	Willow Creek near Ashton	9.13	5,158	5,800	1974-75	
13046000	Henrys Fork near Ashton	1,070	5,095	6,710	1890-91; 1902-9; 1921	Nonrecording gage, 1890-91 and 1902-21. Water-stage recorder, 1921 to present (1975). Irrigation season record only 1920-26.
13047500	Falls River near Squirrel (also 13047000 Diversions)	326	5,589	7,580	1902-3; 1904-9; 1918	Nonrecording gage prior to Oct. 1948. Water-stage recorder, Oct. 1948 to present (1975).

BASIC-DATA TABLE C
DISCHARGE MEASUREMENT, pH, SPECIFIC CONDUCTANCE, AND TEMPERATURE DATA COLLECTED DURING 1974-75 IN THE UPPER HENRYS FORK BASIN

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Temperature (°C) Air
Hope Creek above diversion near Macks Inn (13038600)					
08-20-74	3.36	111	8.4	6.0	17.0
09-06-74	--	116	8.3	5.5	17.0
09-11-74	1.94	153	8.6	5.0	8.0
09-27-74	2.12	122	8.2	4.5	11.5
07-25-75	4.35	138	8.3	8.5	21.5
08-11-75	2.57	126	8.5	9.0	23.0
09-08-75	2.01	139	8.5	7.0	23.0
Duck Creek near Macks Inn (13038605)					
08-02-74	14.1	211	8.2	14.5	23.5
08-20-74	11.6	218	8.5	8.0	16.0
09-11-74	8.20	224	8.7	8.0	17.0
03-27-74	7.1	251	8.1	8.5	6.5
06-10-75	7.1[a]	--	--	--	--
07-25-75	14.8	258	8.2	11.0	22.0
08-05-75	12[a]	--	--	--	--
08-11-75	11.9	264	8.4	9.5	23.0
09-08-75	7.93	276	8.4	9.5	22.0
Duck Creek at highway near Lake (13038630)					
08-21-74	12.1	215	8.6	7.0	16.0
Kelly Creek near Macks Inn (13038660)					
08-20-74	.04	90	7.9	15.0	15.0
06-10-75	.05[a]	--	--	--	--
Timber Creek at mouth near Lake (13038750)					
06-23-74	4.46	261	8.6	19.0	27.0
08-04-74	4.13	283	8.7	12.0	19.5
08-20-74	4.17	287	8.7	11.5	14.5
09-11-74	4.15	179	8.6	6.0	9.0
11-06-74	5.0[a]	--	--	--	--
06-10-75	5.8[a]	--	--	--	--

Basic-Data Table C *(continued)*

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Temperature (°C) Air
Timber Creek at mouth near Lake (13038750) — *continued*					
07-10-75	4.2[a]	--	--	--	--
07-25-75	3.54	342	8.5	18.0	25.0
08-05-75	4.3[a]	--	--	--	--
08-11-75	3.72	330	8.7	12.0	21.0
09-08-75	3.82	353	--	10.5	19.0
Targhee Creek near Macks Inn (13038900)					
06-18-74	304	--	--	--	--
08-02-74	23.3	219	8.5	11.0	19.5
08-20-74	19.7	226	--	7.0	10.0
09-04-74	12.1	231	8.6	10.5	21.5
09-11-74	14[a]	--	--	--	--
09-30-74	8.59	260	8.2	4.0	14.0
06-03-75	40[a]	--	--	--	--
06-06-75	37[a]	--	--	--	--
06-10-75	35[a]	--	--	--	--
07-10-75	42[a]	--	--	--	--
07-22-75	44[a]	196	8.4	7.0	15.0
08-05-75	24[a]	--	--	--	--
08-11-75	24.6	259	8.7	9.5	25.0
09-09-75	9.61	278	8.5	5.5	17.0
10-21-75	6.0[a]	--	--	--	--
Howard Creek near Lake (13038910)					
06-22-74	2.76	144	8.4	17.0	27.5
08-20-74	.81	248	8.7	5.0	3.5
09-12-74	.64	406	8.4	5.0	13.5
09-30-74	.66	304	8.1	3.5	12.0
07-25-75	1.05	246	8.6	17.0	27.0
08-11-75	.72	326	8.7	13.5	25.0
09-09-75	.65	319	8.6	7.0	20.0
Howard Creek near Macks Inn (13038950)					
08-20-74	18.1	273	8.5	5.0	8.0
09-11-74	14.1	295	8.2	6.0	--
09-28-74	12.6	312	7.7	4.5	10.0
05-20-75	9.8[a]	307	8.4	4.0	5.5
06-06-75	10[a]	--	--	--	--

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
Howard Creek near Macks Inn (13038950) – *continued*					
06-10-75	11[a]	--	--	--	--
07-10-75	11[a]	--	--	--	--
07-22-75	12.0[a]	288	8.1	8.5	--
07-25-75	13.8	308	8.5	14.0	26.5
08-05-75	12[a]	--	--	--	--
08-11-75	12.11	341	8.6	11.5	25.0
09-09-75	11.5	337	8.5	6.5	19.5
10-21-75	10[a]	--	--	--	--
Henrys Fork near Lake (13039500)					
03-03-75	100[a]	--	--	--	--
04-09-75	80[a]	296	8.4	5.0	4.0
05-20-75	120[a]	307	8.2	4.0	5.5
06-25-75	68[a]	200	8.0	11.5	9.0
07-22-75	170[a]	208	8.4	19.5	21.0
08-19-75	118	235	9.2	16.0	23.0
09-15-75	130[a]	228	8.3	15.0	--
11-05-75	15.7	252	7.9	4.0	6.0
Henrys Fork at highway near Valley View (13039525)					
08-19-75	122	227	9.0	16.0	22.0
Bootjack Creek near Macks Inn (13039550)					
08-21-74	.30[a]	77	8.2	7.5	11.0
West Twin Creek near Lake (13039610)					
08-21-74	6.39	216	9.2	11.5	20.0
09-11-74	6.13	253	8.6	10.0	12.0
09-28-74	7.82	258	8.4	8.5	16.0
12-05-74	7.93	252	8.5	7.5	0.5
07-10-75	11.8	261	8.6	12.0	22.0
08-05-75	6.97	264	--	10.5	24.5
08-19-75	6.1[a]	--	--	--	--
09-05-75	4.45	260	9.2	12.5	22.5

Date	Discharge (ft^3/s)	Specific conduc-tance (μmhos)	pH	Temperature (°C) Water	Air
		East Twin Creek near Lake (13039620)			
09-28-74	3.53	--	--	7.0	16.0
12-05-74	3.18	256	8.7	6.5	0.5
07-10-75	4.18	258	8.7	11.0	21.0
08-05-75	5.28	257	--	10.0	25.0
08-19-75	6.0[a]	--	--	--	--
09-05-75	6.70	276	8.6	9.5	22.0
		Jesse Creek near Macks Inn (13039650)			
08-03-74	4.05	206	8.4	8.5	19.5
08-21-74	.61	231	8.7	14.5	20.5
09-12-74	.50	240	8.4	5.5	6.0
09-30-74	.56	270	8.3	7.0	17.5
07-10-75	4.8[a]	--	--	--	--
07-26-75	2.89	267	8.2	9.5	20.5
08-12-75	1.97	246	9.1	8.0	20.0
08-19-75	1.0[a]	--	--	--	--
09-05-75	3.12	250	8.8	10.0	23.0
		Reas Pass Creek near Macks Inn (13039800)			
08-03-74	10.7	55	7.7	7.5	20.0
08-21-74	11.5	55	7.9	7.0	19.0
09-12-74	11.8	57	7.6	5.5	4.0
09-28-74	14.2	58	7.2	6.5	14.5
11-05-74	13.1	61	7.4	6.5	6.0
12-03-74	12.5	56	7.2	6.5	7.5
07-10-75	12[a]	--	--	--	--
07-26-75	7.13	61	8.2	8.5	20.5
08-12-75	7.24	60[a]	8.5	8.0	23.0
08-19-75	7.1[a]	--	--	--	--
09-09-75	6.98	64	--	8.0	23.0
		Meadow Creek Springs (13039899)			
12-03-74	20[a]	78	7.2	9.5	9.5
		Henrys Fork near Big Springs (13040000)			
05-22-74	260[a]	130	7.4	10.5	17.5
06-11-74	320[a]	134	7.8	9.0	18.0
06-27-74	450	202	8.1	19.0	22.0

Basic-Data Table C *(continued)*

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
				Water	Air
Henrys Fork near Big Springs (13040000) – *continued*					
07-19-74	205	170	8.7	--	--
07-20-74	210[a]	170	8.7	21.0	25.0
09-11-74	138	153	8.2	10.0	9.0
11-05-74	122	169	8.3	5.0	7.0
12-03-74	127	192	7.9	2.5	3.0
04-09-75	200[a]	--	--	--	--
05-20-75	494	--	--	--	--
06-03-75	406	--	--	--	--
06-25-75	287	154	8.2	8.0	1.0
07-22-75	268	192	8.2	19.5	21.0
08-05-75	232	--	--	--	--
08-19-75	212	184	8.5	16.0	22.0
09-15-75	166	190	8.0	10.5	20.0
Big Springs Creek at Big Springs (13040500)					
08-19-75	233	98	7.2	14.0	18.0
Thirsty Creek at Big Springs (13040600)					
06-25-74	3.06	61	7.8	16.5	23.0
08-17-74	8.22	61	--	10.5	24.0
09-12-74	8.24	51	8.5	9.0	10.0
09-28-74	7.33	65	7.8	9.0	14.5
11-05-74	6.78	63	7.4	7.0	7.0
12-05-74	6.59	63	7.7	7.0	10.0
07-10-75	3.5[a]	--	--	--	--
07-26-75	4.06	67	8.0	11.5	22.5
08-05-75	4.7[a]	--	--	--	--
08-12-75	4.91	76	8.3	11.0	25.0
08-19-75	4.71	67	8.8	12.0	21.0
Moose Creek near Big Springs (13040800)					
06-25-74	78.4	84	7.5	14.0	25.0
08-17-74	74.3	102	7.9	14.0	25.0
09-12-74	71.5	106	8.2	12.5	14.0
10-01-74	68.5	132	7.3	11.5	16.0
11-06-74	70[a]	--	--	--	--
06-03-75	100[a]	--	--	--	--
06-10-75	94[a]	--	--	--	--

Basic-Data Table C *(continued)*

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Temperature (°C) Air
		Moose Creek near Big Springs (13040800) — *continued*			
06-25-75	80[a]	--	--	--	--
07-10-75	75.0	--	--	--	--
07-26-75	75.7	84	7.9	17.0	25.0
08-05-75	72.0	--	--	--	
08-12-75	70.2	93	8.5	12.5	25.0
08-19-75	70.7	91	8.7	14.0	22.
08-19-75	71.20	111	7.0	18.0	18.0
09-11-75	66.0	--	--	--	--
		Henrys Fork at Coffee Pot Lodge near Island Park (13041010)			
09-17 74	488	110	7.7	10.0	17.0
10-01-74	437	120	7.3	7.5	9.5
07-22-75	603	139	8.1	18.5	23.0
08-04-75	563	--	8.6	18.0	25.5
08-19-75	528	136	8.7	15.5	23.0
		Henrys Fork above reservoir near Island Park (13041020)			
05-23-74	500[a]	98	7.4	10.5	15.0
06-11-74	400[a]	107	7.4	11.0	18.0
06-28-74	650[a]	150	7.8	13.5	16.0
07-21-74	250[a]	119	8.5	16.5	28.0
09-06-74	--	--	--	12.5	25.0
09-11-74	560	100	8.4	10.5	15.0
09-12-74	571	--	--	9.0	14.0
09-17-74	488	--	--	--	--
11-06-74	450[a]	115	8.2	7.5	5.5
12-03-74	500[a]	123	7.8	4.0	2.5
12-04-74	500[a]	123	7.4	5.0	1.0
04-10-75	400[a]	136	8.1	5.0	5.0
05-20-75	500[a]	170	8.3	5.5	10.5
06-25-75	650[a]	112	7.9	8.0	1.0
07-22-75	603	132	8.1	16.0	18.0
09-15-75	500[a]	130	7.8	11.5	20.0
		Mill Creek near Island Park (13041100)			
08-22-74	.60[a]	49	7.8	11.5	18.0
10-01-74	.62	--	--	--	--
06-10-75	3.0[a]	--	--	--	--

Date	Discharge (ft^3/s)	Specific conductance (µmhos)	pH	Temperature (°C) Water	Air
		Mill Creek near Island Park (13041100) – *continued*			
08-04-75	.69	55	8.5	13.0	25.0
08-27-75	.27	60	8.6	9.0	20.0
		Sheep Creek above Sheep Creek Reservoir (13041195)			
08-22-74	1.19	120	8.3	9.0	15.0
09-16-74	.75	116	8.2	16.5	23.0
09-29-74	.71	136	8.1	11.0	19.0
07-10-75	5.0[a]	--	--	--	--
08-04-75	2.0	122	8.2	15.5	25.0
09-04-75	.71	127	8.2	9.5	18.0
		Dry Creek near Island Park (13041200)			
08-05-74	3.14	56	8.6	9.5	24.0
09-16-74	1.49	55	8.9	12.5	23.0
09-29-74	1.72	62	8.7	9.0	15.0
08-04-75	5.11	62	7.7	8.5	24.0
09-05-75	1.54	59	8.4	5.5	17.0
		Sheep Creek below Sheep Creek Reservoir (13041300)			
08-22-74	3.94	91	9.7	17.0	27.0
09-15-74	2.47	99	9.7	15.0	23.5
09-29-74	2.03	129	9.4	14.0	23.0
07-10-75	10[a]	--	--	--	--
08-04-75	7.26	83	7.4	17.0	17.5
09-04-75	3.02	89	9.3	14.5	19.5
10-22-75	1.5[a]	--	--	--	--
		Hotel Creek near Island Park (13041350)			
05-21-74	48.0	56	7.3	4.5	6.0
08-05-74	24.7	67	8.2	6.5	18.5
08-22-74	16.8	70	8.4	10.0	27.0
09-30-74	9.82	78	8.2	9.0	15.0
06-03-75	200[a]	--	--	--	--
07-10-75	100[a]	--	--	--	--
08-04-75	21.9	83	8.6	9.5	25.0
09-04-75	11.8	80	8.2	4.5	15.0
09-15-75	11[a]	--	--	--	--

Basic-Data Table C *(continued)*

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
		Hotel Creek near Island Park (13041350) — *continued*			
10-22-75	8.75	79	8.0	3.0	4.0
11-06-75	8.8[a]	--	--	--	--
		Sheridan Creek at A2 road near Island Park (13041401)			
08-17-74	13.2	281	8.6	16.5	26.0
09-13-74	15.0	398	8.5	5.0	15.0
09-29-74	13.6	338	8.2	15.0	15.0
12-05-74	30.0	330	8.2	13.5	2.0
07-10-75	29.7	--	--	--	--
07-27-75	26.9	403	8.1	15.5	24.0
08-06-75	27.6	--	--	--	--
08-27-75	21.3	356	8.6	16.5	20.0
09-18-75	20.1	344	--	15.0	8.0
10-22-75	12.5	353	8.3	13.0	5.0
		Sheridan Creek at A2 road near Island Park (13041402)			
08-17-74	23.7	286	8.5	15.0	17.5
09-13-74	23.1	398	8.5	5.0	15.0
09-29-74	24.2	340	8.2	15.0	15.0
12-05-74	7.99	--	--	13.5	2.0
07-10-75	20.8	--	--	--	--
07-27-75	17.5	380	8.1	15.0	24.0
08-06-75	11.4	--	--	--	--
08-27-75	11.5	354	8.6	16.0	20.0
09-18-75	13.0	341	--	15.0	8.0
10-22-75	21.5	345	8.0	13.0	7.5
		Sheridan Creek at A2 road near Island Park (13041405)			
08-17-74	.54	286	8.8	15.5	22.0
09-13-74	.33	388	8.5	5.0	15.0
09-29-74	.22	--	--	15.0	15.0
12-05-74	.25[a]	--	--	10.5	2.0
07-10-75	5.0[a]	--	--	--	--
07-27-75	.62	377	8.3	17.5	24.5
08-06-75	.40	--	--	--	--
08-27-75	.35	345	8.8	16.5	19.0
09-18-75	.35	--	--	--	--
10-22-75	3.92	345	8.4	11.0	0.5

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Temperature (°C) Air
Sheridan Creek at A2 road near Island Park (13041406)					
08-17-74	4.45	286	8.8	16.0	26.0
09-13-74	4.10	388	8.5	5.0	15.0
09-29-74	3.55	--	--	15.0	15.0
12-05-74	3.47	--	--	10.5	2.0
07-10-75	4.0[a]	--	--	--	--
07-27-75	6.75	374	8.3	17.5	25.0
08-06-75	5.0[a]	--	--	--	--
08-27-75	3.95	350	9.0	16.0	17.0
09-18-75	4.11	--	--	--	--
10-22-75	.08[a]	--	--	--	--
Taylor Creek near Island Park (13041492)					
08-06-74	5.55	232	9.0	12.0	25.0
08-29-74	3.57	242	8.7	6.0	15.0
09-29-74	2.61	277	8.4	4.0	15.0
07-10-75	15[a]	--	--	--	--
07-27-75	5.0	291	8.4	9.0	25.0
08-06-75	4.85	--	--	--	--
08-27-75	3.65	291	9.0	9.0	23.0
09-18-75	3.11	266	--	6.0	14.0
10-22-75	3.95	--	--	--	--
Schneider Creek near Island Park (13041495)					
08-06-74	10.0	220	9.0	9.5	25.5
08-29-74	10.6	224	8.6	6.5	20.5
09-13-74	9.08	258	8.6	4.0	10.5
10-01-74	9.15	262	7.8	4.0	16.5
12-05-74	5.91	250	8.5	2.0	3.5
07-10-75	8.60	--	--	--	--
07-27-75	9.45	289	8.4	8.5	25.5
08-06-75	8.0[a]	--	--	--	--
09-03-75	8.6	307	8.6	7.0	19.0
09-18-75	8.2	247	--	6.0	8.0
10-22-75	7.0[a]	264	--	3.0	0.5
Myers Creek near Island Park (13041496)					
08-06-74	3.08	166	8.3	12.5	25.0
08-29-74	2.46	170	8.0	13.0	25.0
09-27-74	2.46	202	8.0	8.0	17.0
07-10-75	30[a]	--	--	--	--

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Temperature (°C) Air
		Myers Creek near Island Park (13041496) – *continued*			
07-27-75	4.40	189	8.0	15.5	26.0
08-06-75	4.2	--	--	--	--
09-03-75	2.48	217	8.2	10.5	19.0
09-18-75	1.82	193	--	9.0	8.0
10-22-75	2.5	--	--	--	--
		Willow Creek near Island Park (13041497)			
08-06-74	6.65	156	8.5	8.5	22.0
08-29-74	3.52	151	8.4	11.0	25.0
09-29-74	2.30	164	8.0	3.5	6.0
07-10-75	30 [a]	--	--	--	--
08-06-75	8.6	--	--	--	--
10-22-75	4.1	157	--	2.0	0.5
07-27-75	11.6	180	8.3	14.5	26.5
09-03-75	4.49	184	8.2	8.0	19.5
09-18-75	2.84	159	--	7.0	8.0
		Sheridan Creek near Island Park (13041500)			
06-12-75	153	192	8.5	18	22
07-28-75	16.1	275	9.2	25.0	25.0
08-22-75	5.6	206	9.2	13.0	22.0
09-15-75	11.7	217	8.9	16.5	17.5
09-30-75	13.5	280	7.9	13.0	20.0
		Icehouse Creek at upper road near Island Park (13041550)			
08-05-74	14.7	197	9.0	9.5	25.5
09-13-74	14.8	189	8.4	5.0	6.0
09-29-74	13.6	228	8.3	8.0	18.5
12-05-74	14.3	229	8.5	2.0	2.0
07-10-75	14 [a]	--	--	--	--
07-27-75	14.9	248	8.7	11.5	27.0
08-06-75	14 [a]	--	--	--	--
09-03-75	15.2	255	8.8	8.5	19.0
09-18-75	12.6	219	--	6.0	8.0
10-22-75	14 [a]	230	--	4.5	0.5

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C)	
				Water	Air
Icehouse Creek east diversion at upper road (13041551)					
08-05-74	3.2	--	--	--	--
09-13-74	3.4	--	--	--	--
09-29-74	3.78	200	8.0	--	--
12-05-74	2.93	--	--	--	--
07-10-75	4.0[a]	--	--	--	--
07-27-75	4.59	--	--	--	--
08-06-75	4.0[a]	--	--	--	--
09-03-75	3.95	--	--	--	--
09-18-75	4.18	--	--	6.0	8.0
10-22-75	4.0[a]	--	--	--	--
Icehouse Creek east channel at upper road (13041552)					
08-05-74	2.6	--	--	--	--
09-13-74	1.73	--	--	--	--
09-29-74	2.5	200	8.4	--	--
12-05-74	2.78	--	--	--	--
07-10-75	2.4[a]	--	--	--	--
07-27-75	2.4	--	--	--	--
08-06-74	2.4[a]	--	--	--	--
09-03-75	2.77	--	--	--	--
09-18-75	2.42	--	--	6.0	8.0
10-22-75	2.4[a]	--	--	--	--
Icehouse Creek near Island Park (13041600)					
08-22-74	16.9	184	9.0	11.5	18.0
09-06-74	--	256	8.4	--	--
09-15-74	14.2	177	8.5	13.5	23.5
09-30-74	12.9	210	8.4	12.0	--
06-12-75	29.7	186	8.7	15.0	21.0
07-28-75	24.9	212	8.5	16.0	25.0
10-22-75	18.6	213	8.3	3.5	3.0
Henrys Fork near Island Park (13042500)					
03-03-75	652	--	--	--	--
04-10-75	--	155	8.1	5.0	2.0
05-21-75	1,500[a]	126	8.0	4.5	6.5
06-26-75	1,150	123	8.2	13.0	8.0
07-22-75	900	141	8.6	20.0	21.0

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C)	
				Water	Air
Henrys Fork near Island Park (13042500) — *continued*					
08-20-75	1,263	148	8.7	16.5	20.0
09-15-75	880[a]	143	8.3	14.5	21.0
11-04-75	165	187	8.1	5.5	6.0
11-04-75	146	187	8.1	6.7	13.3
Chick Creek at mouth near Island Park (13042740)					
06-04-74	1.9	52	7.8	9.7	12.5
08-18-74	1.62	55	8.3	12.5	18.5
09-17-74	1.93	53	--	9.0	20.0
07-09-75	1.97	63	8.0	15.0	24.0
07-26-75	1.59	59	8.4	--	26.5
08-27-75	1.93	67	8.0	8.5	--
09-18-75	1.35	58	--	5.5	11.0
Buffalo River at mouth of Chick Creek (13042760)					
06-04-74	53.2	74	6.8	11.0	17.0
Elk Creek at Island Park (13042850)					
08-02-74	51.9	96	8.0	11.5	18.0
08-28-74	50.9	103	8.2	16.0	26.0
09-27-74	46.0	116	8.3	11.0	14.0
11-07-74	32.0	--	--	--	--
06-10-75	150[a]	--	--	--	--
07-26-75	64.7	113	8.7	18.0	26.0
09-03-75	40.5	128	7.9	8.5	17.0
09-18-75	37.1	117	--	10.0	14.0
Tom's Creek near Island Park (13042900)					
08-01-74	35.1	132	8.5	17.5	24.5
08-29-74	37.0	123	8.4	15.0	27.5
09-28-74	37.4	144	8.0	11.0	16.0
12-05-74	32.4	143	7.7	5.0	2.0
07-27-75	36.7	145	8.7	23.0	25.0
09-04-75	37.4	154	8.7	15.0	20.0
09-18-75	36.7	147	--	9.5	15.0

Basic-Data Table C *(continued)*

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
Buffalo River at Island Park (13043000)					
05-21-74	460	90	7.6	10.0	7.0
06-11-74	340 [a]	92	7.8	16.5	18.0
06-28-74	275	94	7.2	14.0	23.0
07-21-74	290 [a]	96	8.1	20.5	25.5
07-29-74	248	--	--	14.0	29.0
08-18-74	242	--	--	--	--
09-11-74	219	--	--	12.0	13.5
09-12-74	230 [a]	100	8.1	10.0	9.0
10-21-74	280	--	--	8.0	33.0
12-02-74	225	34	7.4	7.0	3.5
12-04-74	220 [a]	108	8.0	7.5	3.0
01-21-75	210 [a]	118	8.0	4.5	-6.0
03-03-75	226	116	--	7.0	-0.5
04-10-75	200	110	8.0	10.0	--
05-21-75	350	99	7.6	5.5	--
06-05-75	504	87	7.3	14.0	20.0
06-10-75	380	--	--	--	--
06-26-75	307	95	7.8	10.5	11.5
07-02-75	262	--	--	--	--
07-22-75	250	94	7.7	18.0	20.0
07-23-75	250	115	7.3	16.5	24.0
08-12-75	235	--	--	--	--
08-20-75	252	105	6.9	12.0	18.0
09-15-75	220	125	8.2	12.0	14.5
09-16-75	220	--	--	--	--
10-02-75	220	--	--	--	--
10-23-75	230	--	--	--	--
11-04-75	230	--	--	--	--
11-05-75	230	116	8.0	10.0	11.5
Henrys Fork at DeWiner's Ranch near Island Park (13043500)					
08-20-75	1,500 [a]	134	--	15.2	16.8
11-04-75	427	166	8.4	5.5	11.0
Blue Spring Creek near Island Park (13043510)					
08-20-75	7.66	148	7.4	11.0	20.0
11-05-75	5.0 [a]	156	7.8	--	--

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
Island Park Land and Livestock Company's canal near Island Park (13043520)					
08-20-75	31.0	133	7.9	15.0	21.0
11-05-75	1.0[a]	--	--	--	--
Henrys Fork below canal near Island Park (13043530)					
08-20-75	1,500[a]	134	--	17.0	19.0
11-04-75	468	131	8.9	8.5	--
Henrys Fork near Osborne Bridge (13043600)					
08-20-75	1,700	142	8.3	18.0	20.0
11-04-75	428	170	9.1	7.5	8.0
West Thurmon Creek near Island Park (13043700)					
08-16-74	14.6	120	8.2	7.0	18.0
09-26-74	12.8	140	8.2	9.0	22.0
10-01-74	13.0	135	7.9	9.0	21.0
07-09-75	14[a]	136	8.4	10.5	29.0
07-10-75	14.1	141	8.2	10.0	23.0
08-05-75	13.8	145	--	10.5	25.0
09-06-75	13.8	146	8.1	--	18.0
Middle Thurmon Creek near Island Park (13043720)					
08-16-74	7.37	153	8.2	12.0	24.0
09-26-74	6.75	169	8.3	9.5	23.0
10-01-74	7.00	168	7.8	9.0	19.5
07-09-75	8.16	164	8.4	13.0	29.0
07-10-75	8.16	166	8.3	11.0	22.0
08-05-75	8.88	173	--	12.0	25.5
09-06-75	8.39	178	8.2	10.0	20.0
East Thurmon Creek near Island Park (13043740)					
08-16-74	5.19	72	8.3	10.0	23.0
09-26-74	3.81	82	--	13.0	21.0
10-01-74	4.04	83	8.1	12.5	19.0
07-09-75	6.4[a]	75	8.8	16.0	29.0
07-10-75	6.35	79	9.4	23.0	29.0

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
East Thurman Creek near Island Park (13043740) – *continued*					
08-05-75	4.88	78	--	17.0	25.0
09-06-75	4.46	85	8.3	11.0	23.0
Silver Lake outlet near Island Park (13043780)					
11-04-75	22.7	187	8.8	4.5	7.5
Henrys Fork at Osborne Bridge (13043800)					
05-23-74	1,800 [a]	117	8.2	9.5	16.0
06-10-74	2,100 [a]	111	8.7	16.5	18.0
06-28-74	1,590	128	9.0	21.5	23.5
07-22-74	1,400 [a]	119	9.0	20.0	26.5
09-06-74	1,100 [a]	--	--	16.0	22.0
09-12-74	1,090	105	9.4	15.0	20.0
11-07-74	1,230	139	8.8	8.0	8.0
12-04-74	950 [a]	139	8.1	3.0	3.0
01-24-75	880 [a]	--	--	--	--
04-08-75	1,300 [a]	172	7.8	5.0	4.0
05-21-75	2,100 [a]	131	8.2	5.0	8.0
06-06-75	1,800 [a]	--	--	--	--
06-26-75	1,700 [a]	118	9.0	15.0	14.0
07-02-75	1,600 [a]	--	--	--	--
07-02-75	1,600 [a]	--	--	--	--
07-23-75	1,280	134	9.1	21.5	26.0
07-31-75	1,700 [a]	--	--	--	--
08-20-75	1,600	149	9.3	16.0	20.0
09-15-75	1,100 [a]	132	9.3	16.5	20.0
11-04-75	538	180	8.8	7.5	3.5
Henrys Fork at Warm River (13044000)					
05-22-74	2,030	115	8.3	8.5	17.0
06-10-74	2,400	--	--	--	--
06-29-74	1,850	126	8.3	18.0	25.0
07-23-74	1,640	122	8.6	19.5	29.5
07-30-74	1,610	--	--	--	--
09-12-74	1,380	--	--	--	--
09-15-74	1,400	--	--	--	--
09-16-74	1,440	--	--	--	--
10-22-74	1,480	--	--	--	--

Date	Discharge (ft³/s)	Specific conductance (µmhos)	pH	Temperature (°)	
				Water	Air
Henrys Fork at Warm River (13044000) — *continued*					
12-03-74	1,130	--	--	--	--
12-04-74	1,210	--	--	--	--
01-22-75	1,030	--	--	--	--
03-04-75	1,000[a]	--	--	--	--
04-08-75	1,490	--	--	--	--
05-21-75	2,500	--	--	--	--
06-03-75	2,700[a]	--	--	--	--
06-05-75	2,400[a]	--	--	--	--
06-11-75	1,600	--	--	--	--
06-26-75	2,090	--	--	--	--
07-09-75	1,550	--	--	--	--
07-23-75	1,540	130	8.4	20.0	26.0
08-08-75	--	--	--	--	--
08-20-75	1,880	--	--	--	--
08-21-75	1,900	--	--	--	--
08-22-75	1,650	--	--	--	--
09-14-75	1,280	--	--	--	--
09-15-75	1,270	131	8.4	16.0	18.0
10-03-75	--	--	--	--	--
11-05-75	649	--	--	--	--
South channel Split Creek plus north channel Split Creek near Island Park (13044100 & 13042890)					
08-01-74	20.1	64	7.5	13.0	25.0
08-10-74	18.0	58	8.1	15.0	23.0
09-17-74	15.1	58	7.5	11.5	24.0
10-01-74	15.2	62	7.9	5.5	12.5
07-09-75	12.8	--	--	--	--
07-26-75	13.8	65	8.2	19.0	26.0
08-27-75	13.5	72	7.6	9.0	16.0
09-18-75	12.1	60	--	5.5	7.5
South channel Split Creek above diversion near Island Park (13044101)					
08-19-74	11.2	58	8.2	9.5	23.0
09-17-74	11.3	53	7.6	11.0	27.0
10-01-74	10.4	63	7.9	5.5	10.0

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
Diversion from south channel Split Creek near Island Park (13044102)					
08-19-74	5.79	57	8.1	9.5	17.0
09-17-74	6.80	58	7.5	10.0	25.0
10-01-74	6.71	66	7.9	5.5	7.0
Warm River Boy Scout camp diversion canal (13044110)					
09-17-75	4.09	54	--	10.0	15.0
Warm River at Boy Scout camp near Island Park (13044112)					
09-17-75	9.66	53	--	10.0	15.0
Warm River near Boy Scout camp near Island Park (13044120)					
09-17-75	8.92	55	--	10.0	15.0
Warm River at Eccles (13044122)					
09-17-75	10.1	55	--	11.0	14.0
Warm River at Pineview (13044130)					
08-26-75	16.9	64	7.3	10.0	--
09-17-75	10.3	62	--	10.0	17.0
Pineview Campground Springs (13044134)					
09-17-75	9.56	75	--	6.0	17.0
Partridge Creek near Pineview (13044160)					
08-14-74	14.3	47	7.8	7.5	17.5
09-14-74	8.34	53	7.7	9.0	18.0
09-19-74	7.18	53	6.7	7.5	20.0
09-17-75	8.92	56	--	7.0	18.0

Date	Discharge (ft^3/s)	Specific conductance (µmhos)	pH	Temperature (°C) Water	Temperature (°C) Air
		Partridge Creek at mouth (13044166)			
09-17-75	8.92	56	--	7.0	18.0
		Warm River below mouth of Partridge Creek (13044170)			
09-17-75	32.7	65	--	8.0	18.0
		Warm River above fish hatchery near Warm River (13044200)			
08-28-74	73.0	60	7.8	9.0	17.5
08-21-75	66.3	77	--	13.0	18.0
09-17-75	57.4	66	--	10.0	17.0
		Warm River Springs near Warm River (13044250)			
08-28-74	186	--	--	--	--
08-22-75	200	--	--	--	--
		Warm River below fish hatchery near Warm River (13044300)			
08-28-74	259	81	7.6	11.0	24.0
08-22-75	266	128	7.7	10.5	16.0
		Moose Creek near Warm River (13044320)			
08-07-74	8.58	95	8.3	11.5	16.0
08-28-74	7.25	105	7.8	11.0	21.0
09-19-74	6.83	--	--	11.0	25.0
07-24-75	8.66	111	7.4	--	26.0
08-22-75	6.90	111	8.0	10.0	16.0
		Warm River at Warm River (13044500)			
05-22-74	480[a]	94	8.3	7.5	10.5
06-10-74	420[a]	95	8.5	15.0	18.0
06-29-74	362	104	8.3	10.5	20.0
07-23-74	320[a]	107	8.5	14.5	26.5
07-30-74	316	--	--	--	--
09-12-74	278	137	7.9	10.0	12.0
09-16-74	300[a]	111	8.2	10.0	24.0

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
Warm River at Warm River (13044500) – *continued*					
10-22-74	289	--	--	9.5	6.0
12-03-74	256	63	8.4	6.0	1.5
12-04-74	270	118	8.1	8.5	5.0
01-22-75	240[a]	125	--	5.5	-2.5
03-04-75	260	126	--	7.0	0.0
04-08-75	260	134	8.0	7.0	1.5
05-21-75	390	103	8.5	9.5	11.0
06-03-75	1,000[a]	--	--	--	--
06-05-75	738	78	8.1	14.0	21.0
06-11-75	475	--	--	--	--
06-26-75	390[a]	102	8.5	11.0	14.5
07-02-75	395	--	--	--	--
07-09-75	335	--	--	--	--
07-23-75	346	112	8.6	17.0	25.5
07-24-75	346	--	--	--	--
08-08-75	308	--	--	--	--
08-20-75	308	119	7.7	15.0	20.0
08-21-75	289	118	8.4	11.0	17.0
08-22-75	308	--	--	--	--
09-14-75	300	--	--	--	--
09-15-75	305	123	8.2	14.0	20.0
10-03-75	305	--	--	--	--
10-23-75	290	--	--	--	--
11-05-75	295	124	8.2	8.0	10.0
Snow Creek near Warm River (13044600)					
07-09-74	12.8	42	7.9	15.5	25.5
08-18-74	13.0	43	7.9	9.5	25.0
09-27-74	10.3	48	7.6	6.5	17.5
07-29-75	11.0	52	8.3	11.5	20.0
08-29-75	10.4	53	8.2	5.5	15.0
09-14-75	11.7	51	--	10.0	18.0
Rock Creek above Wyoming Creek (13044980)					
08-08-74	5.42	64	8.1	9.5	19.5
09-06-74	2.33	67	8.2	11.0	22.0
09-28-74	1.96	75	7.9	5.5	12.5
07-09-75	10[a]	71	8.0	18.0	30.0
07-29-75	4.93	67	7.8	12.0	20.0

Date	Discharge (ft³/s)	Specific conductance (µmhos)	pH	Temperature (°C) Water	Air
Rock Creek above Wyoming Creek (13044980) – *continued*					
08-29-75	2.98	71	8.1	10.0	21.0
09-13-75	2.57	--	--	11.5	21.0
Wyoming Creek near Ashton (13044990)					
08-15-74	2.62	61	8.0	12.5	25.0
09-06-74	1.51	72	8.3	15.0	27.5
09-28-74	1.35	74	7.8	10.5	21.5
07-09-75	7.0[a]	71	7.8	21.0	30.0
07-29-75	4.36	69	7.9	13.5	20.5
08-29-75	2.59	67	8.0	12.0	19.0
09-13-75	2.39	71	--	14.5	21.0
Rock Creek above Shaefer Creek (13045100)					
08-08-74	12.3	74	8.4	13.5	17.0
09-06-74	5.29	94	8.5	11.0	19.0
09-28-74	4.07	89	8.0	5.5	9.0
07-09-75	25[a]	72	8.2	22.0	30.0
07-29-75	12.8	76	7.7	15.0	20.5
08-29-75	7.37	81	8.0	12.5	22.0
09-13-75	5.79	89	--	11.5	20.0
Porcupine Creek below Rising Creek (13045200)					
08-08-74	2.06	158	8.1	20.5	22.0
09-06-74	1.24	204	8.2	11.5	21.0
09-28-74	1.45	210	8.0	4.5	7.5
07-09-75	3.2[a]	158	8.7	25.0	30.0
07-29-75	1.63	196	7.8	17.0	20.0
08-29-75	1.35	195	--	18.5	22.0
09-13-75	.99	216	--	15.5	18.0
Fish Creek near Warm River (13045400)					
07-09-74	8.01	90	8.1	13.5	27.5
08-18-74	5.68	91	8.1	8.0	18.0
09-27-74	4.36	90	7.5	5.5	10.5
07-29-75	6.16	97	8.0	11.5	20.0
08-29-75	5.03	95	8.3	7.5	17.0
09-14-75	5.20	96	--	10.5	21.0

Date	Discharge (ft^3/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
Robinson Creek at Warm River (13045500)					
05-22-74	400 [a]	71	8.2	6.5	17.0
06-10-74	380 [a]	59	7.9	14.0	18.0
06-29-74	232	85	7.9	13.0	23.0
07-23-74	160 [a]	109	8.5	19.0	29.0
07-30-74	136	--	--	13.0	26.5
09-12-74	126	118	8.0	7.5	18.5
09-16-74	120 [a]	124	8.3	10.0	24.0
10-22-74	123	--	--	5.5	1.0
12-03-74	90.3	64	7.8	1.0	-2.5
12-04-74	100 [a]	140	8.1	5.0	5.0
01-22-75	70 [a]	159	--	0.0	-1.5
03-04-75	80 [a]	158	--	3.5	0.0
04-08-75	70	151	8.2	3.5	1.5
05-21-75	300	81	8.1	5.5	11.0
06-03-75	1,500 [a]	--	--	--	--
06-05-75	1,210	50	7.7	11.5	20.0
06-11-75	830 [a]	75	8.2	10.5	14.5
06-26-75	280 [a]	75	8.2	10.5	14.5
07-02-75	265	--	--	--	--
07-09-75	175	--	--	--	--
07-23-75	146	117	8.5	19.5	26.0
07-24-75	146	110	8.3	20.0	24.0
08-08-75	113	--	--	--	--
08-20-75	117	134	7.6	17.0	20.0
08-21-75	122	134	7.6	13.0	18.0
08-22-75	117	--	--	--	--
09-14-75	100	--	--	--	--
09-15-75	105	138	8.5	14.0	19.0
10-03-75	90	--	--	--	--
10-23-75	97	--	--	--	--
11-05-75	95	141	8.1	4.0	10.0
Warm River at Warm River (13045510)					
11-05-75	390	--	--	10.0	5.0
Henrys Fork below mouth of Warm River (13045600)					
05-22-74	2,900	--	--	--	--
06-10-74	3,200 [a]	109	8.3	15.0	18.0
06-29-74	2,440	--	--	--	--
07-23-74	2,120	--	--	--	--

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C) Water	Air
Henrys Fork below mouth of Warm River (13045600) – *continued*					
07-30-74	2,060	--	--	--	--
09-12-74	1,780	130	8.9	10.0	20.0
09-16-74	1,900[a]	118	8.6	13.0	24.0
10-22-74	1,890	--	--	7.0	6.0
12-03-74	1,480	43	8.0	1.5	2.5
12-04-74	1,600[a]	129	8.0	4.0	5.0
01-22-75	1,600[a]	169	--	0.5	-2.5
03-04-75	1,300[a]	154	--	4.5	1.5
04-08-75	1,800[a]	145	8.3	4.0	1.5
05-21-75	3,200[a]	133	8.4	5.5	12.5
06-03-75	5,200[a]	--	--	--	--
06-05-75	4,650	--	--	--	--
06-11-75	2,900[a]	--	--	--	--
06-26-75	2,800[a]	121	8.7	13.0	15.0
07-02-75	--	--	--	--	--
07-09-75	2,210	--	--	--	--
07-11-75	2,100[a]	--	--	--	--
07-23-75	2,030	--	--	--	--
07-24-75	--	--	--	--	--
08-08-75	--	--	--	--	--
08-20-75	2,300	136	7.8	17.0	20.0
08-21-75	2,310	136	7.8	13.0	17.0
08-22-75	2,080	136	7.8	16.0	15.0
09-14-75	1,700[a]	--	--	--	--
09-15-75	--	--	--	--	--
10-03-75	--	--	--	--	--
11-05-75	1,040	132	8.2	5.0	13.0
Blue Creek near Warm River (13045700)					
05-22-75	6.49	64	7.6	12.0	14.0
06-29-74	.03	65	7.9	18.0	25.0
07-23-74	.50[a]	60	7.9	14.5	26.5
07-30-74	.12[a]	--	--	--	--
09-12-74	.02[a]	152	8.9	10.0	20.0
10-22-74	3.5[a]	--	--	--	--
12-03-74	4.57	17	7.6	0	3.0
09-14-75	1.45	67	--	11.5	21.0
Henrys Fork above Ashton Reservior (13045796)					
08-22-75	2,080	136	--	15.0	18.0
11-05-75	1,070	138	8.2	9.0	4.5

Date	Discharge (ft³/s)	Specific conductance (μmhos)	pH	Temperature (°C)	
				Water	Air
Unnamed Creek No. 1 near Ashton (13045800)					
05-23-74	0.48	179	7.9	19.5	22.5
06-29-74	.04	256	7.6	15.5	26.0
07-24-74	<.01	290	7.9	12.0	18.0
Willow Creek near Ashton (13045850)					
05-23-75	10.3	112	7.8	19.5	21.5
10-01-74	7.95	122	7.6	15.0	21.0
07-30-75	5.83	--	8.0	15.0	17.0
09-14-75	7.09	127	--	14.0	20.0

[a] Estimated value, or based on gage heights.

BASIC-DATA TABLE D

CHEMICAL ANALYSES OF WATER FROM SELECTED SITES IN THE UPPER HENRYS FORK BASIN

(Concentrations in milligrams per liter, except where otherwise noted.)

Site location no.	Site name	Date of collection	Time	Discharge (ft3)	Silica (SiO2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO3)	Carbonate (CO3)	Alkalinity (as CaCO3)	Sulfate (SO4)	Chloride (Cl)	Fluoride (F)	Nitrite plus nitrate as N (total)	Nitrite plus nitrate as N dissolved (NO2+NO3)	Phosphorus total as P	Dissolved solids sum of constituents	Dissolved solids (t/acre-ft)	Hardness as CaCO3 (Ca, mg)	Hardness, noncarbonate	Percent sodium	SAR	Specific conductance (µmhos)	pH	Water temperature (°C)	Air temperature (°C)	Number of bacteria per 100 mL of sample: Immediate (total) coliform	Fecal coliform	Fecal streptococcus
																STREAMS															
13038600	Hope Creek above diversion near Macks Inn	08-20-74	1720	3.4	--	15	4.5	3.1	0.3	89	3	78	2.4	1.3	0.1	0.04	0.03	0.04	--	--	--	--	11	0.2	111	8.4	6.0	17.0	--	--	--
		09-06-74	1000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	116	8.3	5.5	17.0	--	--	--
13038605	Duck Creek near Macks Inn	08-02-74	1640	15	--	34	9.1	1.9	1.1	160	0	131	4.4	1.4	1	.08	.00	.04	--	--	--	--	3	1	211	8.2	14.5	23.5	--	--	--
13038630	Duck Creek at highway near Lake	08-21-74	1220	12	--	30	11	2.3	1.6	170	8	154	4.3	1.1	.1	.00	.01	--	--	--	--	--	--	--	215	8.6	7.0	16.0	--	--	--
13038660	Kelly Creek near Macks Inn	08-20-74	1450	04	--	--	--	--	--	66	0	54	4.1	1.9	1	.07	.01	.19	--	--	--	--	--	--	90	7.9	15.0	15.0	--	--	--
13038750	Timber Creek near Lake	06-23-74	1630	4.5	--	29	12	2.4	.6	200	8	178	3.1	1.1	0	.52	.05	.10	--	--	--	--	4	1	261	8.6	19.0	27.0	--	--	--
		08-04-74	1120	3.7	--	--	--	--	--	--	--	--	2.5	1.4	1	--	.05	--	--	--	--	--	--	--	283	8.7	12.0	19.5	--	--	--
13038900	Targhee Creek near Macks Inn	09-04-74	1830	12	--	34	11	1.8	1.5	160	10	148	6.2	1.0	1	.07	.07	.01	--	--	--	--	3	1	231	8.6	10.5	21.5	--	--	--
		08-02-74	1840	23	--	--	--	--	--	160	3	136	6.4	.8	1	--	.08	--	--	--	--	--	--	--	219	8.5	11.0	19.5	--	--	--
13038910	Howard Creek near Lake	06-22-74	1640	2.8	--	23	7.2	2.0	.5	110	2	94	3.6	1.3	.1	.00	.01	.07	--	--	--	--	5	.1	144	8.4	17.0	27.5	--	--	--
13038950	Howard Creek near Macks Inn	08-20-74	1050	18	--	44	15	1.2	1.0	220	8	194	5.4	1.6	1	.19	.15	.02	--	--	--	--	1	0	273	8.5	5.0	8.0	--	--	--
13039500	Henrys Fork near Lake	05-23-74	1200	18	--	33	11	2.0	1.6	150	8	136	3.9	1.6	0	.02	.02	.06	--	--	--	--	3	1	215	8.6	10.0	12.0	--	--	--
		06-27-74	1450	264	--	34	11	1.9	1.6	160	8	145	4.0	1.4	1	.01	.01	.09	--	--	--	--	3	1	223	8.6	19.0	22.0	340	13[b]	5[b]
		07-20-74	1400	106[a]	--	29	11	2.0	1.2	140	10	131	4.4	.5	1	.01	.00	.05	--	--	--	--	4	1	198	8.9	21.0	24.5	3,800[b]	46	80
		09-11-74	1140	38	--	24	11	2.5	1.8	--	--	--	3.9	1.7	1	.05	.06	.06	--	--	--	--	5	1	177	8.6	11.5	3.5	830[b]	27[b]	60[b]
		10-21-74	1110	14	--	34	12	2.8	2.0	--	--	2	3.7	1.4	1	.33	.26	.08	--	--	130	0	4	1	262	--	--	--	--	--	--
		12-02-74	1145	44	--	37	12	3.3	2.1	39		32	4.5	1.9	1	7.9(?)	.34	.02	--	--	140	--	5	.1	115	7.8	2.5	3.0	--	--	--
		03-03-75	1050	99	--	40	14	3.1	2.9	190	--	154	5.0	1.9	1	.47	.42	.01	--	--	160	3	4	.1	232	--	1.5	--	--	--	--
		04-09-75	1340	94	--	42	14	2.7	2.3	220	0	547	4.3	1.4	0	.49	.45	.02	--	--	160	0	3	1	296	8.4	5.0	4.0	20[b]	0[c]	0
		05-20-75	1140	190	9.0	37	12	2.4	1.9	200	0	476	4.5	1.5	1	--	.44	.02	356	0.48	140	0	4	1	307	8.2	4.0	5.5	21[b]	8[b]	0
		07-22-75	1240	167	4.6	32	10	2.3	1.3	160	5	140	5.6	1.9	1	--	.01	.02	142	.19	120	0	4	.1	208	8.4	19.5	21.0	2,400	6[b]	0
		09-15-75	1100	86	6.2	27	11	2.3	1.9	140	0	112	2.7	1.4	1	--	.05	.04	120	.16	110	0	4	1	228	8.3	15.0	--	--	0	--
13039550	Bootjack Creek near Macks Inn	08-21-74	1000	.17	--	--	--	--	--	39	0	32	2.5	1.5	--	--	.01	--	--	--	--	--	--	--	77	8.2	7.5	11.0	--	--	--
13039610	West Twin Creek near lake	08-21-74	1510	6.4	--	--	--	--	--	110	41	158	12	1.4	1	--	.00	--	--	--	--	--	--	--	216	9.2	11.5	20.0	--	--	--
13039650	Jesse Creek near Macks Inn	08-03-74	1330	4.0	--	--	--	--	--	100	3	87	34	.7	1	--	.34	--	--	--	--	--	--	--	206	8.4	8.5	19.5	--	--	--
13039800	Reas Pass Creek near Macks Inn	08-03-74	1630	11	--	--	--	--	--	30	0	25	1.8	1.4	1.4	.00	.00	.02	--	--	--	--	--	--	55	7.7	7.5	20.0	--	--	--
		11-05-74	1100	13	--	4.7	1.3	4.4	1.8	8	0	7	2.1	1.1	1.5	.02	.00	.00	--	--	--	--	33	5	61	7.4	6.5	6.0	--	--	--
13040000	Henrys Fork near Big Springs	05-22-74	1500	262[a]	--	18	5.0	2.9	1.5	90	0	74	4.4	1.5	.4	.02	.02	.07	--	--	--	--	9	2	130	7.4	10.5	17.5	--	--	--
		06-27-74	1610	450	--	--	--	--	--	150	0	123	4.9	1.0	.3	.04	.04	.12	--	--	--	--	--	--	202	8.1	19.0	22.0	570[b]	73	320
		07-20-74	1810	210[a]	--	24	8.4	3.4	1.4	120	5	107	5.5	1.3	.5	.03	.03	.03	--	--	--	--	7	2	170	8.7	21.0	25.0	5,400[b]	160	640
		09-11-74	1430	138	--	27	6.8	4.2	2.0	120	0	98	4.5	1.6	.8	.04	.03	.06	--	--	--	--	9	2	153	8.2	10.0	9.0	62[b]	20	180[b]
		11-05-74	1620	122	--	22	6.1	4.6	2.0	38	0	31	3.8	1.0	1.0	.10	.10	.01	--	--	80	27	11	2	169	8.3	5.0	7.0	--	--	--
		12-03-74	1340	127	--	23	7.4	5.4	1.9	29	0	24	3.2	1.7	.9	.24	.24	.09	--	--	88	48	12	3	192	7.9	2.5	3.0	56	4[b]	190[b]
		04-09-75	1630	200[a]	--	35	10	3.8	2.4	170	0	139	4.5	1.3	.4	.32	.27	.02	--	--	--	--	6	.1	233	8.0	5.0	--	82	0	14[b]
		05-20-75	1330	494	12	25	8.0	2.5	1.8	130	0	104	3.8	1.3	.3	--	.09	.03	121	.16	95	0	5	1	209	8.0	3.0	6.0	109[b]	35	20
		07-22-75	1510	268	14	27	8.8	3.3	1.5	140	0	115	4.2	.9	.6	--	.00	.02	129	.18	100	2	6	1	192	8.2	19.5	21.0	160	65	60
		09-15-75	1200	166	16	22	7.9	3.6	1.9	110	0	88	4.0	1.1	.6	--	.03	.02	110	.15	87	0	8	2	190	8.0	10.5	20.0	--	80[b]	--
13040600	Thirsty Creek at Big Springs	06-25-74	1530	3.1	--	--	--	--	--	30	0	25	2.4	1.1	3.2	--	--	--	--	--	--	--	--	--	61	7.8	16.5	23.0	--	--	--
		11-05-74	1240	6.8	--	4.6	1.0	5.6	2.6	9	0	7	1.6	.9	2.6	.00	.00	.00	--	--	16	3	39	.6	63	7.4	7.0	7.0	--	--	--
13040800	Moose Creek near Big Springs	06-25-74	1410	78	--	--	--	--	--	43	0	35	3.1	1.9	4.0	.01	.01	.09	--	--	--	--	--	--	84	7.5	14.0	25.0	--	--	--
		08-17-74	1640	74	--	--	--	--	--	--	--	--	2.2	1.6	3.6	--	.00	--	--	--	--	--	--	--	102	7.9	14.0	25.0	--	--	--
13040900	Henrys Fork at Macks Inn	06-11-74	1130	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	111	7.8	11.0	18.0	140	28	--
13040920	Henrys Fork at Flat Rock campground	07-23-75	1700	600[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	142	8.5	17.0	23.0	--	320	--
13040940	Henrys Fork at Upper Coffee Pot campground	07-23-75	1710	600[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	139	8.5	17.0	23.0	--	220	--
13040960	Henrys Fork above Coffee Pot Rapids	07-23-75	1720	603	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	139	8.1	18.0	23.0	1,400	47	20
13041000	Henrys Fork at Coffee Pot Rapids near Island Park	07-23-75	1250	600[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	140	8.2	18.5	22.0	--	88	--
13041020	Henrys Fork above reservoir near Island Park	05-23-74	1700	500[a]	--	10	2.6	7.1	2.0	60	0	49	3.3	1.9	1.5	.04	.04	.06	--	--	--	--	29	5	98	7.4	10.5	15.0	--	--	--
		06-28-74	0900	650[a]	--	--	--	--	--	100	0	82	3.8	1.5	1.3	.06	.06	.09	--	--	--	--	--	--	150	7.8	13.5	16.0	1,000[b]	380[b]	270
		07-21-74	1600	450[a]	--	12	3.6	8.1	2.1	73	2	60	3.2	1.5	2.1	.01	.01	.03	--	--	--	--	27	5	119	8.5	16.5	28.0	220[b]	12[b]	14[b]
		09-11-74	1650	440	--	9.3	2.5	8.5	2.9	56	3	51	3.2	1.9	2.0	.01	.00	.05	--	--	--	--	33	.6	100	8.4	10.5	15.0	30[b]	13[b]	100
		11-06-74	1530	450	--	9.9	2.6	9.2	2.7	32	0	26	2.4	1.7	2.2	.01	.01	.00	--	--	35	0	34	7	115	8.2	7.5	5.5	--	--	--
		12-03-74	1640	500[a]	--	11	2.9	9.6	2.6	--	--	--	2.4	1.8	2.2	.14	.14	.02	--	--	39	--	33	7	123	7.8	4.0	2.5	55	1[b]	11[b]
		04-10-75	1300	400[a]	--	17	4.8	8.8	2.8	93	0	76	2.6	1.9	1.9	.08	.08	.02	--	--	62	0	23	5	136	8.1	5.5	5.0	580	22	0
		05-20-75	1700	800[a]	--	16	4.2	5.8	2.2	88	0	72	3.0	1.9	1.2	--	.02	.02	--	--	--	--	17	3	170	8.3	5.5	10.5	48	44	0
		07-22-75	2100	603	30	15	4.2	7.8	2.1	92	0	75	2.9	1.5	1.9	--	.00	.01	111	15	55	0	23	5	132	8.1	16.0	18.0	52[b]	40	20
		09-15-75	1300	500[a]	32	10	2.3	9.2	2.6	58	0	48	2.7	1.8	2.1	--	.01	.01	91	.12	34	0	35	7	130	7.8	11.5	20.0	--	10[b]	--
13041100	Mill Creek near Island Park	08-22-74	1730	60	--	--	--	--	--	45	0	37	2.8	1.0	1	.03	.02	.05	--	--	--	--	--	--	49	7.8	11.5	18.0	--	--	--
13041195	Sheep Creek above Sheep Creek Reservoir	08-22-74	1000	1.2	--	--	--	--	--	98	0	80	4.0	1.8	.1	.03	.01	.06	--	--	--	--	--	--	120	8.3	9.0	15.0	--	--	--
13041200	Dry Creek near Island Park	08-05-74	1230	3.0	--	--	--	--	--	31	3	30	3.5	1.0	.1	--	.03	--	--	--	--	--	--	--	56	8.6	9.5	24.0	--	--	--
13041300	Sheep Creek below Sheep Cr. Res	08-22-74	1520	3.9	--	--	--	--	--	31	21	60	3.4	1.8	1	.03	.01	.05	--	--	--	--	--	--	91	9.7	17.0	27.0	--	--	--

Basic-Data Table D *(continued)*

Site location no.	Site name	Date of collection	Time	Discharge (ft^3)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Alkalinity (as $CaCO_3$)	Sulfate (SO_4)	Chloride (C)	Fluoride (F)	Nitrite plus nitrate as N (total)	Nitrite plus nitrate as N dissolved (NO_2+NO_3)	Phosphorus total as P	Dissolved solids sum of constituents	Dissolved solids (t/acre-ft)	Hardness as $CaCO_3$ (Ca, mg)	Hardness, noncarbonate	Percent sodium	SAR	Specific conductance (µmhos)	pH	Water temperature (°C)	Air temperature (°C)	Number of bacteria per 100 mL of sample: Immediate (total) coliform	Fecal coliform	Fecal streptococcus
13041350	Hotel Creek near Island Park	05-21-74	1530	48	--	6.3	2.1	2.2	0.9	34	0	28	3.0	1.3	0.0	0.05	0.05	0.10	--	--	--	--	16	0.2	56	7.3	4.5	6.0	--	--	--
		08-05-74	1030	25	--	--	--	--	--	51	0	42	2.4	5	1	--	.00	--	--	--	--	--	--	--	67	8.2	6.5	18.5	--	--	--
		08-22-74	1700	17	--	--	--	--	--	55	2	48	2.2	.5	1	.03	.01	.04	--	--	--	--	--	--	70	8.4	10.0	27.0	--	--	--
13041401	Sheridan Creek at A2 road near Island Park	08-17-74	1410	13	--	50	17	2.0	1.3	200	14	187	3.2	1.4	.2	.15	12	.01	--	--	--	--	2	1	281	8.6	16.5	26.0	--	--	--
13041492	Taylor Creek near Island Park	08-29-74	0940	3.6	--	--	--	--	--	180	6	158	4.5	2.4	1	--	13	--	--	--	--	--	--	--	242	8.7	6.0	15.0	--	--	--
		08-06-74	1710	5.6	--	--	--	--	--	150	21	158	--	--	--	--	--	--	--	--	--	--	--	--	--	9.0	12.0	25.0	--	--	--
13041495	Schneider Creek near Island Park	08-06-74	1510	10	--	--	--	--	--	150	20	156	2.4	.3	.1	--	.09	--	--	--	--	--	--	--	220	9.0	9.5	--	--	--	--
13041496	Myers Creek near Island Park	08-06-74	1330	3.1	--	--	--	--	--	130	0	107	3.5	.7	1	--	.00	--	--	--	--	--	--	--	166	8.3	12.5	--	--	--	--
13041497	Willow Creek near Island Park	08-06-74	1150	6.6	--	--	--	--	--	110	3	95	2.6	.1	1	--	.00	--	--	--	--	--	--	--	156	8.5	8.5	--	--	--	--
13041500	Sheridan Creek near Island Park	08-22-74	1130	5.6	--	--	--	--	--	110	18	120	21	1.1	.2	.03	.01	.02	--	--	--	--	--	--	206	9.2	13.0	--	--	--	--
13041550	Icehouse Creek at upper road near Island Park	08-05-74	1530	15	--	27	13	.9	.4	130	14	130	3.4	5	.1	11	.09	.03	--	--	--	--	2	.00	197	9.0	9.5	--	--	--	--
13041600	Icehouse Creek near Island Park	08-22-74	1400	17	--	--	--	--	--	140	14	138	3.3	1.7	.1	.03	.01	.02	--	--	--	--	--	--	184	9.0	11.5	--	--	--	--
		09-06-74	1100	--	--	--	--	--	--	--	--	--	--	--	--	--	.02	--	--	--	--	--	--	--	256	8.4	9.0	--	--	--	--
13042500	Henrys Fork near Island Park	05-23-74	0910	1,210	--	13	3.8	5.8	1.8	74	0	61	4.6	1.7	1.1	.02	.02	.06	--	--	--	--	20	.4	120	8.1	7.5	--	--	--	--
		06-28-74	1040	1,170	--	16	4.5	5.6	1.8	86	0	71	4.9	1.4	1.0	--	.03	.09	--	--	--	--	17	3	132	8.2	18.5	--	75[b]	1[b]	35[b]
		07-22-74	1200	978	--	15	4.4	5.2	1.6	81	0	66	4.7	1.0	1.1	.03	.01	.07	--	--	--	--	16	.3	125	8.0	16.0	--	1,900[b]	4[b]	55
		09-11-74	1515	768	--	13	3.1	8.2	2.6	--	--	--	3.9	2.2	1.7	.05	.04	.05	--	--	--	--	27	5	156	8.8	13.0	--	--	--	--
		10-21-74	1550	684	--	10	3.2	10	1.5	--	--	--	3.0	2.5	1.9	.03	.03	.01	--	--	38	--	35	.7	--	--	7.0	--	--	--	--
		12-02-74	1445	574	--	14	4.0	8.4	2.2	--	--	--	3.6	2.3	1.7	17	.17	.03	--	--	51	--	25	.5	--	7.7	4.0	--	--	--	--
		04-10-75	1200	991	--	19	4.1	8.4	2.7	100	0	82	3.3	1.9	2.0	.10	.10	.03	--	--	64	0	21	.5	155	8.1	5.0	2.0	24	0	0
		05-21-75	0910	1,490	25	19	5.0	7.2	2.3	98	0	80	3.3	2.2	1.6	--	.02	.02	114	0.16	68	0	18	.4	153	8.0	4.5	6.5	40	0	0
		07-22-75	1700	914	22	16	5.1	5.8	1.7	73	10	76	4.2	1.3	1.3	--	.00	.03	103	.14	61	0	17	.3	141	8.6	20.0	21.0	200	0	8[b]
		09-15-75	1400	717	26	14	4.0	7.2	2.2	75	0	62	3.7	1.5	1.5	--	.03	.07	97	.13	51	0	22	.4	143	8.3	14.5	21.0	--	4[b]	--
13042740	Chick Creek at mouth near Island Park	06-04-74	1500	2.0	--	4.0	.8	5.0	2.5	40	0	33	2.4	1.3	2.0	.05	.01	.02	--	--	--	--	40	.6	52	7.8	9.5	--	--	--	--
13042850	Elk Creek at Island Park	08-02-74	1120	52	--	--	--	--	--	64	0	52	4.0	1.4	--	--	.01	--	--	--	--	--	--	--	96	8.0	11.5	--	--	--	--
13042900	Toms Creek near Island Park	08-01-74	1730	35	--	8.1	1.2	23	2.3	63	6	62	2.9	4.3	2.6	.03	.03	.02	--	--	--	--	64	2.0	132	8.5	17.5	--	--	--	--
13043000	Buffalo River at Island Park	05-21-74	1800	460	--	5.2	.7	12	2.1	46	0	43	3.4	2.4	2.3	.01	.02	.02	--	--	--	--	58	1.3	90	7.6	10.0		--	--	--
		06-28-74	1130	275	--	6.5	1.0	12	2.3	53	0	43	3.5	2.2	2.3	.01	.01	.08	--	--	--	--	53	1.2	94	7.2	14.0		80[b]	7[b]	170
		07-21-74	2000	288[a]	--	5.6	1.0	13	2.2	52	0	43	3.7	2.2	2.6	.01	.01	.02	--	--	--	--	58	1.3	96	8.1	20.5		740	16[b]	150[b]
		09-11-74	1340	219	--	9.0	1.2	12	2.7	--	--	--	3.9	3.6	2.2	1.0	.02	.02	--	--	--	--	46	1.0	--	8.4	12.0		--	--	--
		10-21-74	1430	280	--	8.5	1.9	12	2.4	--	--	--	3.0	2.5	1.8	.14	.13	.04	--	--	29	--	45	1.0	--	--	8.0	1.0	--	--	--
		12-02-74	1640	225	--	7.9	1.2	15	2.4	--	--	--	2.8	2.6	2.1	.10	.06	.00	--	--	25	--	54	1.3	--	7.3	7.0	3.5	--	--	--
		04-10-75	1500	200	--	8.7	.7	13	3.1	63	0	52	2.5	2.5	.8	.02	.02	.02	--	--	25	0	50	1.1	110	8.0	10.0		5 300	32	0
		05-21-75	1010	350	29	7.0	1.5	10	2.4	56	0	46	2.9	2.3	1.7	--	.05	.03	85	12	24	0	45	.9	99	7.6	5.5	7.0	400[b]	121	44
		07-22-75	1730	250	36	8.0	1.3	11.0	2.3	65	0	53	3.3	1.9	2.2	--	.01	.01	98	13	25	0	46	1.0	94	7.7	18.0	24.0	175	34	20[b]
		09-15-75	1440	220	37	6.0	.8	19	2.7	52	0	43	2.7	3.5	2.8	--	.00	.01	100	.14	18	0	66	1.9	125	8.2	14.5	21.0	--	4[b]	--
13043700	West Thurmon Cr. near Island Park	08-16-74	1040	15	--	--	--	--	--	100	0	82	3.4	1.6	0.6	--	.15	--	--	--	--	--	--	--	120	8.2	7.0	--	--	--	--
13043720	Middle Thurmon Creek near Island Park	08-16-74	1420	7.4	--	--	--	--	--	130	0	107	--	1.8	.6	--	.27	--	--	--	--	--	--	--	150	8.2	12.0	--	--	--	--
13043740	East Thurmon Creek near Island Park	08-16-74	1240	5.2	--	--	--	--	--	56	0	46	3.3	1.6	.6	--	.06	--	--	--	--	--	--	--	72	8.3	10.0		--	--	--
13043800	Henrys Fork at Osborne Bridge Bridge	05-23-74	1150	1,850[a]	--	11	2.9	7.1	1.8	69	0	57	3.7	1.8	1.3	.03	.03	.04	--	--	--	--	27	.5	117	8.2	9.5		--	--	--
		06-28-74	1540	1,590	--	--	--	--	--	62	8	64	4.6	1.7	1.2	.00	.01	.03	--	--	--	--	--	--	128	9.0	21.5		500[b]	3[b]	970[b]
		07-22-74	1500	1,420[a]	--	--	--	--	--	58	10	64	4.8	1.0	1.3	.01	.01	.04	--	--	--	--	--	--	119	9.0	20.0		760	7[b]	1 900[b]
		09-12-74	1530	1,090	--	12	5.0	8.2	2.0	32	25	68	4.9	2.7	1.5	.08	.07	.06	--	--	--	--	25	.5	105	9.4	15.0		62[b]	4[b]	340
		11-07-74	1310	1,230	--	16	4.2	8.1	1.8	11	3	14	3.3	1.6	1.5	.01	.01	.02	--	--	57	20	23	5	139	8.8	8.0		--	--	--
		12-04-74	1050	950	--	15	3.8	8.9	2.2	26	0	21	3.8	1.9	1.4	.22	.14	.06	--	--	53	17	26	.5	139	8.1	3.0	3.0	290[b]	12[b]	46
		04-08-75	1630	1,300	--	16	4.0	9.3	2.9	90	0	74	3.3	2.3	1.7	.10	.13	.03	--	--	56	0	25	.5	172	7.8	5.0		24[b]	<1	0
		05-21-75	1130	2,100	23	13	3.4	6.7	2.2	82	0	67	3.2	1.8	1.2	--	.02	.04	95	.13	46	0	23	.4	131	8.2	5.0	8.0	120	7[b]	29[b]
		07-23-75	1300	1,280	24	17	4.1	7.2	1.7	59	10	65	4.3	1.5	1.5	--	.00	.02	100	.14	59	0	20	.4	134	9.1	21.5	26.0	1,100	160	120
		09-15-75	--	1,100	26	13	3.8	9.0	2.0	39	15	57	4.8	1.9	1.6	--	.01	.03	96	13	48	0	28	.6	132	9.3	16.5	20.0	--	5[b]	--
13044000	Henrys Fork at Warm River	05-22-74	1500	2,030	--	11	2.9	7.5	1.8	72	0	59	3.7	1.8	1.3	.08	.03	.04	--	--	--	--	28	.5	115	8.3	8.5		--	--	--
		06-29-74	1310	1,850	--	14	4.0	7.2	1.8	81	0	66	4.1	1.7	1.3	.00	.00	.10	--	--	--	--	23	4	126	8.3	18.0		12,000[b]	8[b]	1 500[b]
		07-23-74	1740	1,640	--	13	4.0	7.6	1.8	72	2	62	5.0	1.9	1.5	.03	.03	.03	--	--	--	--	24	.5	122	8.6	19.5		780	4[b]	820
		09-12-74	1100	1,380	--	11	2.3	9.6	2.5	--	--	--	3.4	2.4	2.0	.01	.00	.01	--	--	--	--	34	.7	130	8.9	10.0		--	--	--
		10-22-74	1115	1,480	--	11	3.8	9.6	1.9	--	--	--	2.8	2.2	1.8	.08	.08	.01	--	--	43	--	31	6	--	--	9.0		--	--	--
		12-03-74	1400	1,130	--	12	2.9	10	2.2	--	--	--	3.4	2.5	1.9	10	.09	.02	--	--	42	--	33	1.0	--	8.0	1.5	5.0	--	--	--
		04-08-75	1330	1,490	--	27	2.4	9.8	2.8	85	0	70	2.8	2.2	5	.11	.06	.02	--	--	77	7	21	5	145	8.3	4.0		24[b]	1[b]	0
		05-21-75	1420	2,500	26	13	3.6	8.0	2.3	80	0	66	2.9	1.8	1.5	--	.02	.03	97	.13	47	0	26	5	133	8.4	5.5	12.5	324[b]	8[b]	8[b]
		07-23-75	1700	1,540	26	12	5.4	8.2	1.8	78	4	70	3.4	1.7	1.6	--	.00	.02	102	.14	52	0	25	.5	130	8.4	20.5	26.0	400	9[b]	10[b]
		09-15-75	1740	1,400[a]	27	13	4.3	9.2	2.1	66	0	54	3.5	3.0	1.6	--	.05	.03	96	.13	50	0	27	.6	131	8.4	16.0	18.0	--	145	--
13044100	South channel Split Creek near Island Park	08-01-74	1400	12	--	4.6	2	6.2	2.0	30	0	25	2.2	8	2.9	.01	.00	.01	--	--	--	--	48	8	64	7.5	13.0	--	--	--	--

Basic-Data Table D *(continued)*

Site location no.	Site name	Date of collection	Time	Discharge (ft^3)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Alkalinity (as $CaCO_3$)	Sulfate (SO_4)	Chloride (C)	Fluoride (F)	Nitrite plus nitrate as N (total)	Nitrite plus nitrate as N dissolved (NO_2+NO_3)	Phosphorus total as P	Dissolved solids sum of constituents	Dissolved solids (t/acre-ft)	Hardness as $CaCO_3$ (Ca, mg)	Hardness, noncarbonate	Percent sodium	SAR	Specific conductance (μmhos)	pH	Water temperature (°C)	Air temperature (°C)	Number of bacteria per 100 mL of sample: Immediate (total) coliform	Fecal coliform	Fecal streptococcus
													Streams – *continued*																		
13044160	Partridge Creek near Pineview	08-14-74	1210	14	--	5.9	1.6	3.5	1.6	31	0	25	3.2	0.9	1.2	0.13	0.08	0.03	--	--	--	--	25	0.3	47	7.8	7.5		--	--	--
13044200	Warm River above fish hatchery near Warm River	08-28-74	1000	73	--	13	2.0	3.7	3.5	43	0	35	2.4	9	1.4	.12	.02	.04	--	--	--	--	15	.3	50	7.8	9.0	17.5	--	--	--
13044320	Moose Creek near Warm River	08-07-74	1450	8.5	--	--	--	--	--	55	0	45	--	--	--	--	--	--	--	--	--	--	--	--	89	8.3	11.5	--	--	--	--
		08-28-74	1250	7.2	--	--	--	--	--	48	0	39	2.3	1.0	2.0	--	05	--	--	--	--	--	--	--	105	7.8	11.0	--	--	--	--
13044500	Warm River at Warm River	05-22-74	1100	475[a]	--	6.7	1.7	8.3	1.4	57	0	47	2.9	3.2	1.4	.07	.07	.03	--	--	--	--	41	.07	94	8.3	7.5		--	1[b]	--
		06-29-74	1140	362	--	7.7	2.0	11	1.5	57	0	47	2.2	4.3	1.9	.00	.03	.02	--	--	--	--	45	.9	104	8.3	10.5		20,000[b]	3[b]	55
		07-23-74	1400	325[a]	--	7.7	1.8	12	1.4	55	1	45	2.5	4.4	2.1	.04	.03	.04	--	--	--	--	48	1.0	107	8.5	14.5		940[b]	1[b]	10[b]
		09-12-74	0820	278	--	8.2	9	13	1.8	--	--	--	2.4	5.7	2.2	18	.04	.02	--	--	--	--	52	1.2	137	7.9	10.0		--	--	--
		10-22-74	0830	289	--	7.4	2.1	13	1.7	--	--	--	1.6	5.1	2.2	.06	.07	.04	--	--	27	--	49	1.1	120	--	9.5	6.0	--	--	--
		12-03-74	1045	256	--	8.6	1.5	14	2.1	--	--	--	1.9	6.0	2.2	.14	.09	.00	--	--	28	--	50	1.2	--	8.3	6.0	15.0	--	--	--
		04-08-75	1100	260	--	8.0	9	14	1.7	60	0	49	1.3	6.3	2.3	.05	.05	.02	--	--	24	--	54	1.3	134	8.0	7.0		56[b]	1[b]	0
		05-21-75	1310	390	26	6.8	1.8	9.5	1.6	42	2	38	2.0	4.3	1.5	--	.06	.02	77	0.10	24	0	44	8	103	8.5	9.5	11.0	73	6[b]	4[b]
		07-23-75	1600	346	35	9.8	2.1	12	1.6	59	2	44	1.8	4.5	2.2	--	.02	.01	96	.13	33	0	43	9	115	8.4	16.0	25.0	400	2[b]	5[b]
		09-15-75	1700	305	33	8.0	1.6	13	1.6	51	0	42	2.1	4.5	2.1	--	.05	.01	91	.12	27	0	50	1.1	123	8.2	14.0	20.0	--	1[b]	--
13044600	Snow Creek near Warm River	07-09-74	1750	13	--	--	--	--	--	22	0	18	2.1	.6	1.8	--	.01	--	--	--	--	--	--	--	42	7.9	15.5		--	--	--
13044980	Rock Creek above Wyoming Creek	08-08-74	1150	5.4	--	--	--	--	--	44	0	36	2.1	.6	1	--	.01	--	--	--	--	--	--	--	64	8.1	9.5		--	--	--
13044990	Wyoming Creek near Ashton	08-15-74	1340	2.6	--	--	--	--	--	49	0	40	2.0	.8	.1	--	.03	--	--	--	--	--	--	--	61	8.0	12.5		--	--	--
13045100	Rock Creek above Shaefer Creek	08-08-74	1430	12	--	9.0	2.4	3.5	9	49	1	42	2.2	9	.1	.00	.00	.02	--	--	--	--	19	.3	74	8.4	13.5		--	--	--
13045200	Porcupine Creek below Rising Creek	08-08-74	1630	2.1	--	21	5.6	10	2.3	110	0	90	3.3	3.3	.8	.00	.00	09	--	--	--	--	22	5	160	8.1	20.5		--	--	--
13045400	Fish Creek near Warm River	07-09-74	1600	8.0	--	--	--	--	--	58	0	48	3.0	.9	.4	--	.00	--	--	--	--	--	--	--	90	8.1	13.5		--	--	--
13045500	Robinson Creek at Warm River	05-22-74	1320	400	--	6.7	1.6	4.3	1.1	45	0	37	2.6	1.9	.4	.03	.04	.05	--	--	--	--	27	.04	71	8.2	6.5		--	--	--
		06-29-74	1240	232	--	12	1.7	7.8	1.5	48	0	39	2.4	3.8	1.1	.18	.09	.10	--	--	--	--	30	.6	85	7.9	13.0		12,000[a]	43	110
		07-23-74	1540	160[a]	--	9.2	2.0	11	1.8	58	1	49	2.3	4.5	1.8	.03	.01	03	--	--	--	--	42	9	109	8.5	19.0		1,000	21	390
		09-12-74	1000	126	--	9.2	1.2	14	2.4	--	--	--	2.3	7.0	2.4	.03	.01	.03	--	--	--	--	50	1.2	118	8.0	7.5		--	--	--
		10-22-74	1010	123	--	10	2.4	15	1.6	--	--	--	1.9	6.7	2.0	.80	.03	.04	--	--	35	--	47	1.1	139	--	5.5	1.0	--	--	--
		12-03-74	0910	90	--	11	2.0	16	2.0	--	--	--	2.3	8.8	2.3	.18	.18	.01	--	--	36	--	48	1.2	--	7.8	1.0	-2.5	--	--	--
		04-08-75	1230	70	--	11	.9	16	2.7	78	0	64	1.6	8.2	2.0	.06	.05	.04	--	--	31	--	50	1.2	151	8.2	3.5		15[b]	9[b]	0
		05-21-75	1540	300	21	7.3	1.9	5.3	1.4	43	0	35	2.6	3.2	.7	--	.14	.03	65	.09	26	0	29	.5	81	8.1	5.5	11.0	181[b]	7[b]	7[b]
		07-23-75	1630	146	36	9.3	2.3	11	1.7	54	7	56	1.9	4.7	1.8	--	.02	.01	103	14	33	0	41	.8	117	8.5	19.5	26.0	460	4[b]	20[b]
		09-15-75	1520	105	36	9.8	2.3	14	2.2	57	1	48	2.1	5.7	2.1	--	.05	.01	104	.14	34	0	45	1.0	138	8.5	14.0	19.0	--	12[b]	--
13045700	Blue Creek near Warm River	05-22-74	1720	6.5	--	5.7	1.3	3.7	1.1	33	0	27	4.7	1.5	.1	.26	.26	.10	--	--	--	--	28	.4	64	7.6	12.0		--	--	--
		06-29-74	1520	03	--	7.6	1.8	3.7	1.2	39	0	32	4.3	1.7	.2	.07	.10	.08	--	--	--	--	22	.3	65	7.9	18.0		--	--	--
		07-23-74	1840	50	--	6.4	1.7	3.5	9	37	0	30	3.9	9	2	.04	.03	.06	--	--	--	--	24	3	60	7.9	14.5		1,600	42	61
		09-12-74	1300	02	--	7.3	.9	4.0	1.2	--	--	--	3.6	4.4	2	.06	.01	.07	--	--	--	--	27	.4	152	8.9	10.0		--	--	--
		10-22-74	1330	3.5	--	5.0	1.4	3.6	1.1	--	--	--	2.6	1.7	.1	.32	.03	.09	--	--	18	--	29	.4	45	--	--	--	--	--	--
13045800	Unnamed Creek no 1 near Ashton	05-23-74	1730	48	--	--	--	--	--	100	0	82	4.3	6.6	.4	--	1.0	--	--	--	--	--	--	--	179	7.9	19.5		--	--	--
		06-29-74	1540	.04	--	35	9.8	8.2	3.3	180	0	148	3.5	6.5	.5	1.4	1.5	.40	--	--	--	--	12	.3	256	7.6	15.5		--	--	--
		07-24-74	1000	<.01	--	41	12	8.5	5.0	220	0	180	3.7	7.2	.6	.25	.24	.54	--	--	--	--	10	.3	290	7.9	12.0		6,000[a]	5[b]	150[b]
13045850	Willow Creek near Ashton	05-23-74	1520	10	--	12	2.9	5.7	1.5	67	0	55	3.2	2.8	.5	.41	.36	.07	--	--	--	--	22	.4	112	7.8	19.5		--	--	--
13046000	Henrys Fork near Ashton	05-24-74	1000	3,700	--	9.7	2.7	7.2	1.6	57	0	47	3.7	2.2	1.1	.08	.06	.05	--	--	--	--	30	.5	102	8.3	10.5		--	--	--
		06-28-74	1950	2,480	--	16	3.3	8.0	1.8	75	0	62	3.7	2.4	1.3	.00	.02	.04	--	--	--	--	24	.5	115	7.9	16.0		1,300	27	840
		07-23-74	1115	2,100	--	13	3.3	9.1	1.7	74	1	62	4.1	1.9	1.6	.08	.07	.06	--	--	--	--	29	.6	121	8.4	19.0		2,000	5[b]	300[b]
		09-13-74	0940	1,830	--	12	2.2	11	2.2	--	--	--	3.3	4.0	2.0	.08	.06	.04	--	--	--	--	36	.8	112	8.1	11.5		--	--	--
		10-23-74	0900	1,830	--	17	3.4	12	2.0	--	--	--	3.2	3.1	1.7	.42	.15	.03	--	--	56	--	31	.7	136	--	5.0		--	--	--
		12-04-74	1105	1,510	--	11	2.8	11	2.0	--	--	--	2.9	3.5	2.0	.11	.08	.02	--	--	39	--	37	.8	--	7.9	1.5	6.0	--	--	--
		03-06-75	1330	1,330	--	17	2.3	12	2.5	--	--	--	4.5	3.8	1.9	.14	14	.01	--	--	52	--	32	.7	160	--	4.5	4.0	--	--	--
		04-08-75	1450	1,730	--	34	3.3	11	2.6	85	0	70	2.5	3.2	2.0	.07	.06	.02	--	--	94	29	19	.5	148	8.2	6.0		19[b]	<1	0
		05-21-75	1630	3,420	24	12	3.4	7.7	2.0	71	0	58	2.9	2.7	1.2	--	.19	.03	92	.13	44	0	26	.5	133	8.1	6.0		390[b]	13[b]	10[b]
		06-26-75	--	2,520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	121	8.2	11.5	16.0	47	66	54
		07-23-75	1800	2,100	29	13	3.9	9.5	1.8	95	0	78	3.6	2.4	1.7	--	11	.02	112	.15	49	0	29	.6	138	7.9	18.0	25.0	1,900	25	70
		09-15-75	1800	1,620	29	12	3.9	11	2.0	66	0	54	3.1	2.4	1.8	--	11	.02	98	.13	46	0	33	7	145	8.0	14.5	18.0	--	0	--
		10-23-75	1540		27	13	3.8	12	2.1	74	0	61	3.2	3.0	1.7	--	.11	.02	103	.14	48	0	34	.8	148	8.1	7.5	4.0	--	--	--
13047500	Falls River near Squirrel	09-16-75	1020	654	40	4.9	.6	21	3.1	54	0	44	3.3	9.0	2.9	--	.01	.01	111	15	15	0	71	2.4	140	7.8	13.0	18.0	--	--	--
													LAKES AND RESERVOIRS																		
13N-41E-14cba1	Icehouse Creek Reservoir at outlet	07-10-75	1720	--	--	10	7.1	9	.2	6	39	70	1.7	.3	.1	.04	.04	.02	--	--	54	0	3	1	141	10.0	25.5	30.0	--	--	--
13043780	Silver Lake at outlet	09-16-74	1000	10[a]	--	13	4.1	6.6	2.0	10	37	70	4.3	1.9	.8	.01	.01	.05	--	--	--	--	22	.4	119	9.7	12.5	24.0	135	0	15[b]
		06-06-75	0900	10[a]	--	14	8.5	4.6	1.6	70	2	61	3.0	1.4	.6	.01	.01	.05	--	--	70	9	12	.2	119	8.4	17.0	22.0	--	--	--
10N-45E-35abc1	Lilly Pad Lake	08-30-72	--	--	1	2.6	.4	5	1.0	11	0	9	2.2	1.1	1	--	.10	.03	14	--	8	0	10	.1	19	7.1	17.5	--	--	--	--
HL-1 top	Henrys Lake	09-04-74	1130	--	--	29	12	2.5	1.5	150	10	140	3.3	2.3	1	.00	.00	.06	--	--	--	--	4	0.1	204	8.6	15.1	20.0	145[b]	6[b]	0
HL-1 top	Henrys Lake	06-04-75	1000	--	--	36	11	2.3	1.6	160	12	151	3.6	.9	.1	.01	.01	.04	--	--	140	0	4	.1	259	8.9	8.0	8.0	0	0	2[b]
HL-1 bottom	Henrys Lake	09-04-74	1140	--	--	--	--	--	--	160	4	138	4.1	1.4	.1	.10	.05	19	--	--	--	--	--	--	206	8.6	13.8	20.0	--	--	--
HL-1 bottom	Henrys Lake	06-04-75	1010	--	--	35	12	2.2	1.6	150	11	141	3.0	1.0	.1	.08	.02	.30	--	--	140	0	3	.1	256	8.8	8.0	8.0	--	--	--

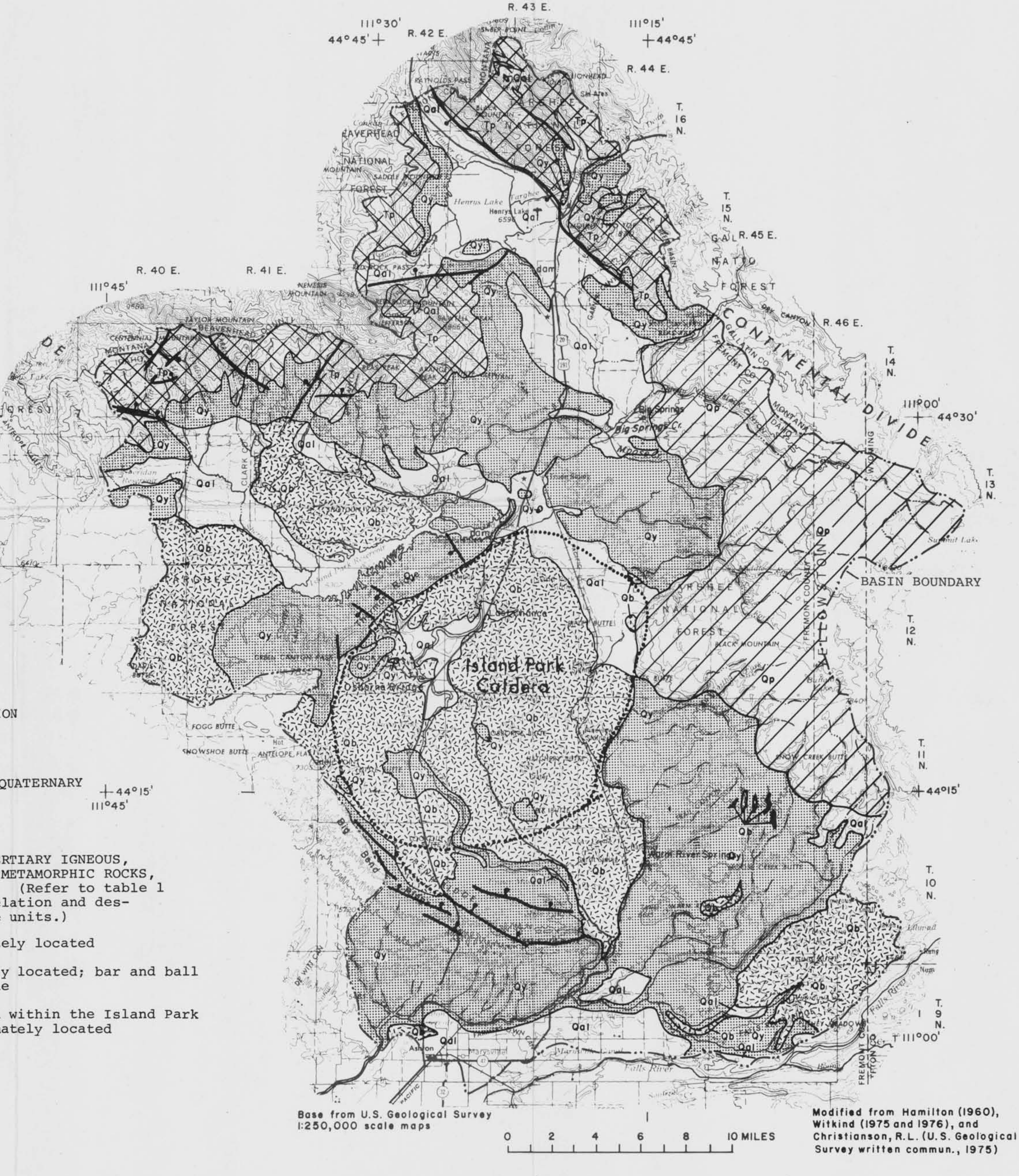
Basic-Data Table D *(continued)*

Site location no.	Site name	Date of collection	Time	Discharge (ft³)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Alkalinity (as $CaCO_3$)	Sulfate (SO_4)	Chloride (C)	Fluoride (F)	Nitrite plus nitrate as N (total)	Nitrite plus nitrate as N dissolved (NO_2+NO_3)	Phosphorus total as P	Dissolved solids sum of constituents	Dissolved solids (t/acre-ft)	Hardness as $CaCO_3$ (Ca, mg)	Hardness, noncarbonate	Percent sodium	SAR	Specific conductance (µmhos)	pH	Water temperature (°C)	Air temperature (°C)	Number of bacteria per 100 mL of sample: Immediate (total) coliform	Fecal coliform	Fecal streptococcus
Lakes and Reservoirs – *continued*																															
HL-2	Henrys Lake	09-04-74	1220	–	–	–	–	–	–	140	14	138	3.3	2.2	0.1	0.00	0.00	0.07	–	–	–	–	–	–	200	8.7	15.4	21.0	100b	6b	0
HL-3	Henrys Lake	09-04-74	1320	–	–	–	–	–	–	130	18	–	3.2	2.3	.1	.00	.01	.10	–	–	–	–	–	–	198	8.8	16.2	21.0	80b	25b	0
HL-4	Henrys Lake	09-04-74	1440	–	–	–	–	–	–	140	15	140	3.7	1.9	.1	.00	.00	.06	–	–	–	–	–	–	201	8.8	15.4	25.0	164b	2b	0
HL-5	Henrys Lake	09-04-74	1400	–	–	–	–	–	–	130	19	138	3.2	2.2	.1	.00	.00	.06	–	–	–	–	–	–	201	8.9	17.0	24.0	–	–	–
HL-6 top	Henrys Lake	06-04-75	1020	–	–	35	11	2.1	1.7	140	16	–	3.0	.8	.1	.00	.00	.04	–	–	130	0	3	.1	237	8.9	9.0	8.0	17b	0	0
HL-6 bottom	Henrys Lake	06-04-75	1030	–	–	33	11	2.5	1.7	140	1	–	3.0	1.3	.1	.00	.00	.04	–	–	130	13	4	.1	247	8.9	9.0	8.0	1b	0	0
IP-1	Island Park Reservoir	09-05-74	1130	–	–	17	6.5	5.3	1.2	72	17	87	5.3	1.4	1.0	.07	.06	.09	–	–	–	–	14	.3	135	9.2	17.5	17.5	–	–	–
IP-2	Island Park Reservoir	09-05-74	1330	–	–	–	–	–	–	58	14	71	4.0	2.3	1.3	.07	.08	.08	–	–	–	–	–	–	130	8.8	17.2	18.5	–	–	–
IP-3	Island Park Reservoir	09-05-74	1230	–	–	–	–	–	–	49	25	82	4.6	1.4	1.1	.00	.00	.06	–	–	–	–	–	–	136	8.9	17.3	20.5	–	–	–
IP-4	Island Park Reservoir	09-05-74	1420	–	–	–	–	–	–	63	17	80	4.9	1.5	1.3	.00	.01	.07	–	–	–	–	–	–	133	8.9	17.0	19.5	–	–	–
IP-5 top	Island Park Reservoir	06-04-75	1300	–	–	13	4.2	5.1	1.8	78	0	–	2.3	1.1	1.1	.00	.00	.03	–	–	50	0	18	.3	126	8.3	12.8	18.0	17b	0	2b
IP-5 bottom	Island Park Reservoir	06-04-75	1310	–	–	16	4.7	5.6	1.9	85	0	–	2.7	1.3	1.3	.00	.00	.03	–	–	59	0	17	.3	140	8.3	7.6	18.0	69	1b	14b
IP-6 top	Island Park Reservoir	06-04-75	1220	–	–	16	5.0	5.4	1.8	83	5	–	3.6	1.5	1.2	.00	.00	.02	–	–	61	0	16	.3	150	8.8	12.0	18.0	2b	0	10b
IP-6 bottom	Island Park Reservoir	06-04-75	1230	–	–	17	4.9	5.6	1.8	93	0	–	4.1	1.1	1.2	.01	.01	.06	–	–	63	0	16	.3	152	7.9	7.2	18.0	–	–	–
SPRINGS																															
16N-42E-23ddd1S		06-23-74	1250	1.1	–	–	–	–	–	140	0	115	3.0	1.1	.0	–	.70	–	–	–	–	–	–	–	194	7.7	6.0	26.5	–	–	–
		07-20-74	1100	1.1	–	32	18	1.7	0.6	200	0	164	3.2	1.1	.1	.12	.00	.02	–	–	–	–	2	.1	240	7.7	6.5	25.0	29	0	1b
16N-44E-32caa1s		06-22-74	1150	1.0	–	–	–	–	–	20	0	16	2.3	.8	.1	–	2.0	–	–	–	–	–	–	–	80	7.4	3.5	21.0	–	–	–
14N-44E-16dad1S		12-03-74	1330	20a	–	5.2	9	8.2	2.4	9	0	–	1.7	1.7	2.5	.06	.06	.02	–	–	–	–	47	.9	78	7.2	9.5	9.5	–	–	–
-34bbb1S[1]		08-28-72	–	204	47	5.6	.6	14	3	46	0	38	3.2	2.5	3.1	–	.05	.03	102	0.14	16	0	60	1.5	102	6.4	12.0	–	–	–	–
		05-20-75	1700	200a	42	6.7	.3	13	3	46	0	34	2.0	3.1	3.0	–	.02	.01	94	.13	18	0	56	1.3	106	7.2	10.5	3.0	–	–	–
13N-41E-6ccd1S		08-06-75	1100	.05a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	106	7.1	4.5	22.0	–	–	–
-6cdb1S[2]		08-06-75	1130	5.0a	12	45	19	2.5	3.0	190	0	155	3.2	1.0	.4	–	.07	–	208	.28	190	36	3	.1	369	7.7	19.0	22.0	–	–	–
13N-42E-10cbb1S		06-08-74	1150	4.8	–	–	–	–	–	30	0	25	4.1	1.7	.1	–	.12	–	–	–	–	–	–	–	42	7.3	5.5	12.0	–	–	–
13N-43E-24dbc1S[3]		07-24-75	1000	7.0a	50	16	9	33	4.0	98	0	80	7.3	.03	4.1	–	.03	–	175	–	44	–	60	2.2	197	6.7	16.5	25.0	–	–	–
13N-44E-21adc1S		06-04-74	1520	70	–	3.8	5	11	2.4	40	0	–	2.4	2.0	2.7	.05	.03	.04	–	–	–	–	62	1.4	74	6.8	11.0	17.0	–	–	–
13N-45E-9cdd1S		06-21-74	1400	.10	–	–	–	–	–	14	0	11	2.2	.8	–	.01	.00	.02	–	–	–	–	–	–	23	6.5	2.5	17.5	–	–	–
11N-43E-5bdc1S		06-08-74	1540	7.7	–	7.6	3.0	5.3	2.1	60	0	49	2.9	1.5	1.3	.10	.09	.05	–	–	–	–	25	.4	81	7.3	5.5	17.0	–	–	–
10N-44E-10cbalS		08-28-74	1100	186	–	15	2.1	11	6.5	68	0	56	2.2	6.9	2.7	.08	.08	.04	–	–	–	–	31	.7	125	7.2	11.0	25.5	–	–	–
09N-42E-23dac1S[4]		08-28-72	–	.01	110	1.1	1	36	1.6	92	0	75	4.7	2.9	2.2	–	.24	.05	205	–	3	0	94	8.8	158	7.6	41.0	–	–	–	–
09N-43E-14dbc1S		10-23-75	–	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	358	7.9	12.5	4.0	–	–	–
-15ddc1S[5]		10-23-75	1200	3.0	–	32	5.0	36	1.9	190	0	157	6.7	5.6	2.0	–	.83	–	233	.32	100	0	43	1.6	337	8.0	24.5	4.0	–	–	–
09N-45E-12bac1S		09-19-74	1100	.04	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	66	7.7	5.0	–	–	–	–
12N-42E-15ccc1S		09-16-74	0950	–																					164	7.4	11.5	18.0	0	0	0
11N-44E-18bab1S		09-10-75	–	4,300																					82		5.0				
WELLS																															
16N-43E-31ccb1		08-04-74	1250	–	–	21	7.6	12	1.6	140	0	115	6.5	4.9	2	.26	.00	.01	–	–	–	–	23	.6	194	7.9	13.0	–	–	–	–
-32aac1		06-23-74	1500	–	–	16	8.6	5.3	2.0	98	0	–	1.4	1.1	1	.01	.01	.05	–	–	–	–	13	.3	162	8.0	11.0	–	–	–	–
-32daa1		06-24-74	1110	–	–	29	1.9	4.5	1.6	120	0	98	8.7	1.4	1	.16	.03	.02	–	–	–	–	11	2	171	8.1	11.5	29.0	–	–	–
15N-43E-13bca1		07-11-74	0930	–	–	48	15	1.3	1.0	240	0	197	5.6	1.5	1	.52	.50	.00	–	–	–	–	2	.0	283	7.8	10.0	13.0	–	–	–
-24aab1		07-08-75	1100	–	6.8	28	13	2.2	1.5	160	0	127	11	1.5	.1	–	.10	.01	141	.18	120	0	4	1	240	8.3	11.0	28.0	–	–	–
-26cdd1		05-23-74	1030	–	–	–	–	–	–	170	0	139	3.6	1.7	.1	.56	.53	.04	–	–	–	–	–	–	209	7.2	–	–	–	–	–
		07-20-74	1340	–	–	–	–	–	–	150	0	123	3.5	.9	.2	.39	.28	.03	–	–	–	–	–	–	208	7.2	10.0	21.0	1b	0	0
14N-43E-34dcb1		07-11-74	1130	–	–	5.1	1.2	2.7	1.2	30	0	25	3.1	1.6	2	.78	.70	.01	–	–	–	–	23	.3	59	7.3	12.5	13.0	–	–	–
14N-44E-30aac1		06-27-74	1550	–	–	–	–	–	–	94	0	77	3.2	1.0	5	.19	.24	.08	–	–	–	–	–	–	134	7.4	9.0	24.0	0	0	0
		07-16-74	1330	–	–	–	–	–	–	–	–	–	3.1	.9	.6	–	.53	–	–	–	–	–	–	–	135	–	9.0	–	–	–	–
-34bcd1		06-25-74	1150	–	–	6.6	5	1.4	2.5	56	0	–	3.7	3.6	4.6	.00	.00	.02	–	–	–	–	12	1	113	7.0	12.0	24.0	–	–	–
		07-16-74	1420	–	–	–	–	–	–	–	–	–	3.7	3.4	3.5	–	.00	–	–	–	–	–	–	–	108	–	–	–	–	–	–
13N-40E-30cac2		07-18-74	1950	–	–	–	–	–	–	–	–	–	5.2	.7	.1	–	.13	–	–	–	–	–	–	–	159	–	8.0	–	–	–	–
13N-41E-15aad1		06-26-74	1030	–	–	–	–	–	–	140	0	46	3.2	1.5	.0	18	.04	.02	–	–	–	–	–	–	182	7.4	9.0	16.5	–	–	–
		07-18-74	2110	–	–	–	–	–	–	–	–	–	3.8	.8	.1	–	.23	–	–	–	–	–	–	–	178	–	–	–	–	–	–
13N-42E-12acb1		07-21-74	1050	–	–	–	–	–	–	54	0	44	1.1	.3	1	–	.00	–	–	–	–	–	–	–	65	7.1	8.5	–	–	–	–
13N-43E-15adc1		07-10-74	1630	–	–	–	–	–	–	42	0	34	2.9	.8	3	25	.23	.02	–	–	–	–	–	–	82	7.4	7.5	24.0	–	–	–
		07-21-74	1825	–	–	–	–	–	–	49	0	40	2.9	.7	.3	.22	.21	.03	–	–	–	–	–	–	75	7.2	–	–	3a	0	0
-23aba1		09-13-74	1230	–	–	7.4	1.5	9.8	2.7	60	0	49	3.5	1.6	1.6	.04	.05	.07	–	–	–	–	43	9	106	7.1	11.5	14.5	–	–	–
-27abc1		07-11-74	1350	–	–	11	2.9	7.2	2.4	72	0	59	3.1	1.7	1.1	.09	.00	.01	–	–	–	–	27	5	104	7.2	9.0	17.0	–	–	–
12N-39E-1dba1		06-12-75	1040	–	33	11	5.9	4.3	2.0	70	0	57	4.3	2.6	1	–	1.3	.10	103	.14	52	0	15	.3	132	7.4	10.0	22.0	–	–	–
12N-40E-5ddd1		07-10-75	–	–	–	–	–	–	–	73	0	–	–	–	–	–	–	–	–	–	–	–	–	–	123	7.5	6.5	–	–	–	–
-17abc1		07-10-75	2030	–	38	9.7	7.0	3.9	1.7	73	0	60	4.6	1.1	.2	–	.58	14	105	.13	53	0	13	2	123	7.8	6.5	25.0	–	–	–
-23acd1		07-18-74	1315	–	–	–	–	–	–	–	–	–	9.8	11	1	–	2.4	–	–	–	–	–	–	–	185	–	11.0	–	–	–	–

Basic-Data Table D *(continued)*

Site location no.	Site name	Date of collection	Time	Discharge (ft^3)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Alkalinity (as $CaCO_3$)	Sulfate (SO_4)	Chloride (C)	Fluoride (F)	Nitrite plus nitrate as N (total)	Nitrite plus nitrate as N dissolved (NO_2+NO_3)	Phosphorus total as P	Dissolved solids sum of constituents	Dissolved solids (t/acre-ft)	Hardness as $CaCO_3$ (Ca, mg)	Hardness, noncarbonate	Percent sodium	SAR	Specific conductance (μmhos)	pH	Water temperature (°C)	Air temperature (°C)	Number of bacteria per 100 mL of sample: Immediate (total) coliform	Fecal coliform	Fecal streptococcus
													Wells — *continued*																		
12N-40E-25ccb1		07-18-74	1155	--	--	--	--	--	--	--	--	--	8.7	2.2	0.0	--	1.5	--	--	--	--	--	--	--	116	--	12.0	--	--	--	--
12N-41E-7bad1		07-11-75	1010	--	35	13	6.1	3.8	1.8	83	0	68	4.2	2.6	2	--	1.7	0.12	115	0.15	58	0	12	0.2	149	7.8	7.9	24.0	--	--	--
12N-42E-17bda1		06-26-74	1720	--	--	15	1.6	5.7	1.4	83	0	68	4.6	1.8	.2	0.45	13	.08	--	--	--	--	21	.4	122	7.1	9.0	24.0	--	--	--
		07-17-74	1050	--	--	--	--	--	--	--	--	--	5.8	1.4	.2	--	.23	--	--	--	--	--	--	--	114	--	--	--	--	--	--
-18cdb1		07-17-74	1150	--	--	--	--	--	--	--	--	--	4.0	.8	.1	--	.00	--	--	--	--	--	--	--	56	--	14.5	22.0	--	--	--
12N-43E-17dba2		07-22-74	1830	--	--	--	--	--	--	--	--	--	3.4	1.8	1.5	--	.05	--	--	--	--	--	--	--	145	--	--	--	24	0	1[b]
12N-44E-8baa1		09-11-75	1400	--	9	3.5	1	4.6	2.5	23	0	19	0.8	.8	1.4	--	.07	.00	26	.04	9	0	45	.7	52	6.6	4.5	22.0	--	--	--
-20adb1		07-24-75	1220	--	37	7.4	5.2	4.8	1.2	46	0	38	5.9	.7	1.4	--	.01	.63	86	.12	40	2	20	.3	104	6.9	7.5	26.0	--	--	--
-20adb2		07-10-74	1300	--	--	2.1	.7	9	1.6	13	0	11	2.5	1.0	.3	.30	27	.01	--	--	--	--	16	.1	25	6.5	9.5	26.0	--	--	--
11N-41E-7cba1		07-18-74	1020	--	--	--	--	--	--	--	--	--	4.3	.8	2	--	.46	--	--	--	--	--	--	--	54	--	12.5	19.5	--	--	--
11N-42E-11dad1		07-22-74	1730	--	--	--	--	--	--	--	--	--	5.4	1.7	1	--	.02	--	--	--	--	--	--	--	124	--	--	--	0	0	0
-23daa1		07-11-74	1650	--	--	11	4.7	5.2	1.6	71	0	58	3.6	1.4	.6	10	.00	.04	--	--	--	--	19	.3	113	7.5	12.5	18.5	--	--	--
10N-44E-9bcb1		07-24-75	1400	--	18	16	4.5	4.9	3.3	38	0	31	4.2	5.6	.1	--	9.1	.16	116	16	58	27	15	.3	164	6.3	6.5	26.0	--	--	--
09N-42E-12dca1		09-14-75	1300	--	39	26	7.4	10	2.1	110	0	89	5.7	4.8	9	--	6.0	29	176	24	95	7	18	.4	269	7.3	--	--	--	--	--
-23dda1		07-09-74	1150	--	--	--	--	--	--	270	0	--	13	9.0	.9	4.0	3.8	.04	--	--	--	--	--	--	373	7.4	12.5	25.0	--	--	--
		07-24-74	1055	--	--	50	14	24	2.1	260	0	213	13	9.0	9	3.8	3.8	.05					22	8	375	7.4	12.5	--	<1	0	<1
09N-43E-19cdb1		08-08-75	1220	--	42	42	14	15	1.6	200	0	162	6.6	5.2	7	--	5.2	.04	247	34	160	1	17	.5	385	6.3	--	--	--	--	--
-30ccc2		08-08-75	1140	--	43	46	15	19	2.7	220	0	184	9.5	10	1.0	--	4.0	.05	274	.37	180	0	19	6	443	6.3	11.5	22.0	--	--	--
09N-44E-8cda1		09-14-75	1700	--	30	50	15	6.0	2.3	240	0	198	1.1	2.8	.6	--	.42	.02	229	31	190	0	6	.2	391	7.5	--	18.0	--	--	--
-27cbc1		08-08-75	1200	--	43	22	8.7	18	1.6	130	0	106	4.9	7.0	1.1	--	3.1	.11	184	.25	91	0	30	.8	278	6.6	--	22.0	--	--	--
30daa1[6]		09-16-75	1100	--	35	95	39	10	2.6	330	0	267	16	36	5	--	25	.08	506	.69	400	130	5	.2	830	7.5	13.0	18.0	--	--	--
08N-43E-1ddb1[7]		10-23-75	1400	--	34	50	17.0	9.0	2.2	240	0	195	5.3	3.0	8	--	3.8	.05	256	.35	190	0	9	.3	409	7.7	8.0	8.0	--	--	--

[a] Estimated.
[b] Nonideal colony count
[c] 0 -- Analyzed for, but not detected (Bacteria analyses, only.)
[1] Estimated aquifer temperature based on Na+K+Ca 65°C; based on SiO_2, 95°C.
[2] Estimated aquifer temperature based on Na+K+Ca 16°C. Analyses of minor elements in μg/L; arsenic (As), 0; boron (B), 9; lithium (Li) 0; and mercury (Hg), 0.0.
[3] Estimated aquifer temperature based on Na+K+Ca, 62°C. Analyses of minor elements in μg/L; arsenic (As), 3; boron (B), 120; lithium (Li), 150 and mercury (Hg) 0.3
[4] Estimated aquifer temperature based on Na+K+Ca, 90°C; based on SiO_2 145°C.
[5] Analyses of minor elements in μg/L; arsenic (As), 7; boron (B), 40; lithium (Li) 80; and mercury (Hg), 0.0
[6] Analyses of minor elements in μg/L; arsenic (As), 1; boron (B) 60; lithium (Li), 0; and mercury (Hg), 0.2.
[7] Analyses of minor elements in μg/L; arsenic (As), 3; boron (B), 20; lithium (Li) 20; and mercury (Hg) 0.0.



EXPLANATION

Qal	ALLUVIUM
Qp	PLATEAU RHYOLITE
Qb	BASALT
Qy	YELLOWSTONE GROUP

QUATERNARY

Tp — TERTIARY AND PRE-TERTIARY IGNEOUS, SEDIMENTARY, AND METAMORPHIC ROCKS, UNDIFFERENTIATED. (Refer to table 1 in text for correlation and description of above units.)

Contact--approximately located

Fault--approximately located; bar and ball on downthrown side

Boundary of lowland within the Island Park caldera, approximately located

Base from U.S. Geological Survey 1:250,000 scale maps

Modified from Hamilton (1960), Witkind (1975 and 1976), and Christiansen, R.L. (U.S. Geological Survey written commun., 1975)

FIGURE 4.--GENERALIZED GEOLOGY IN THE UPPER HENRYS FORK BASIN

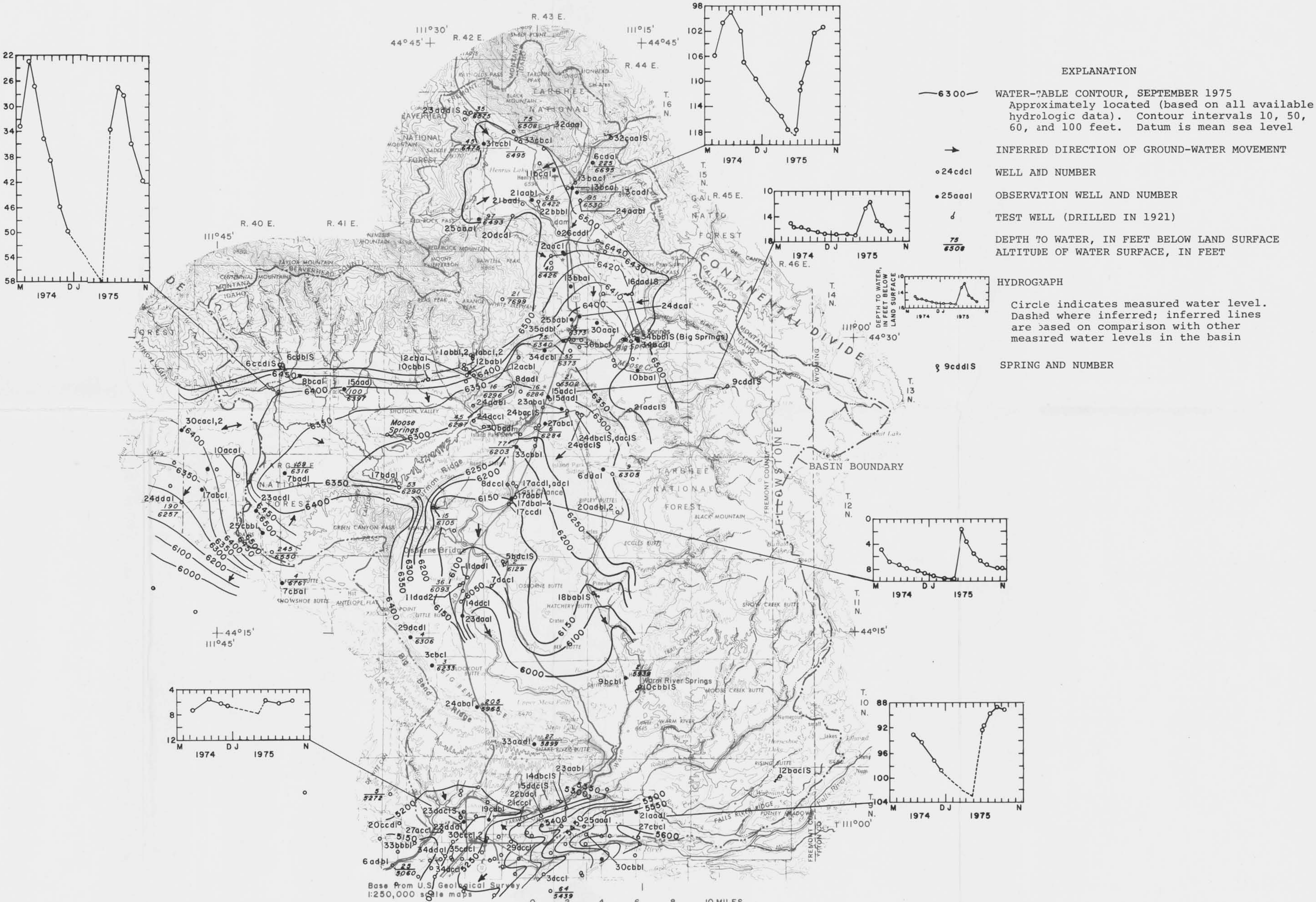


FIGURE 5.--LOCATION OF DATA SITES AND SELECTED HYDROLOGIC INFORMATION IN THE UPPER HENRYS FORK BASIN

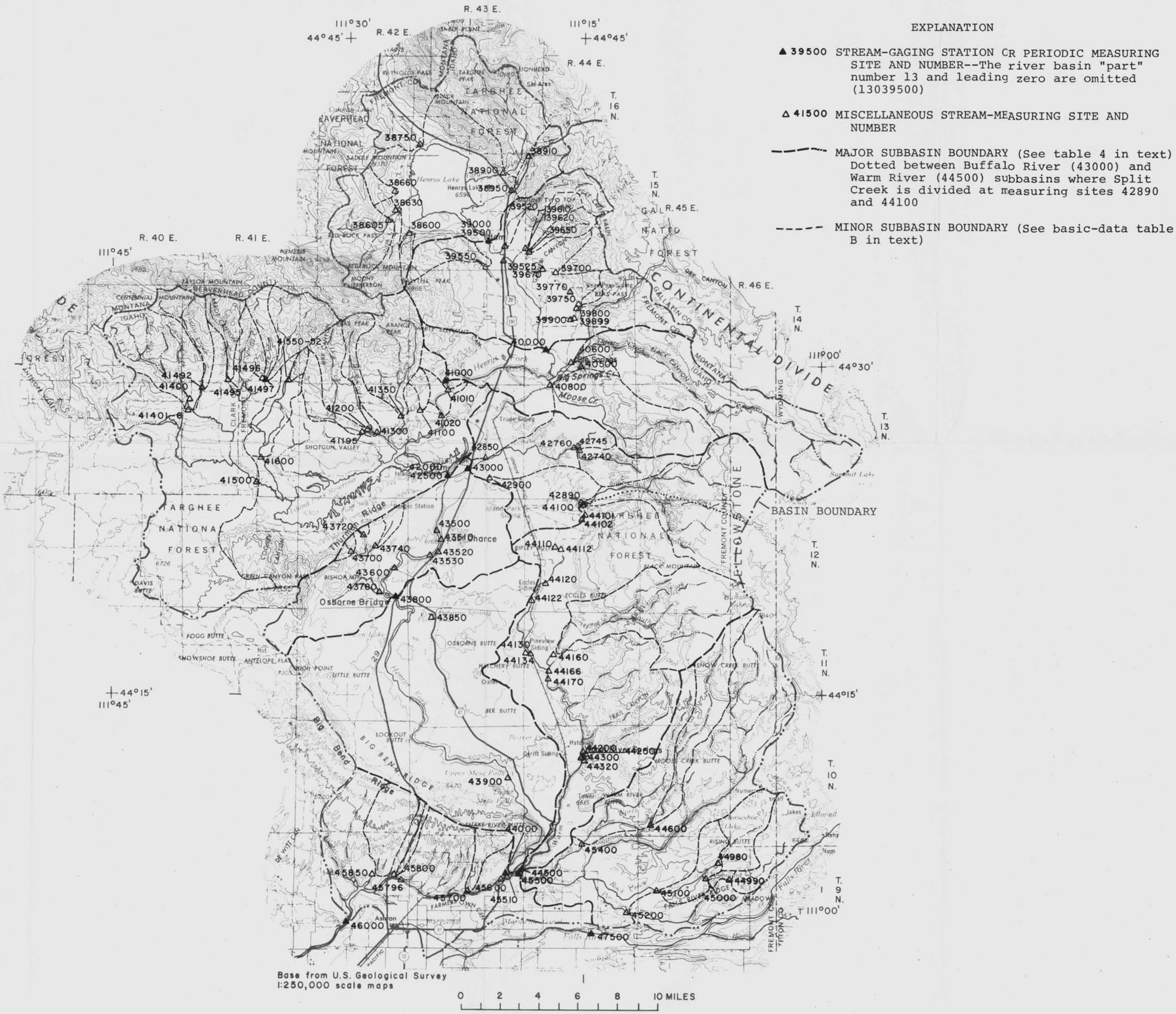


FIGURE 7.--LOCATION OF STREAM-MEASURING SITES AND SUBBASIN BOUNDARIES IN THE UPPER HENRYS FORK BASIN

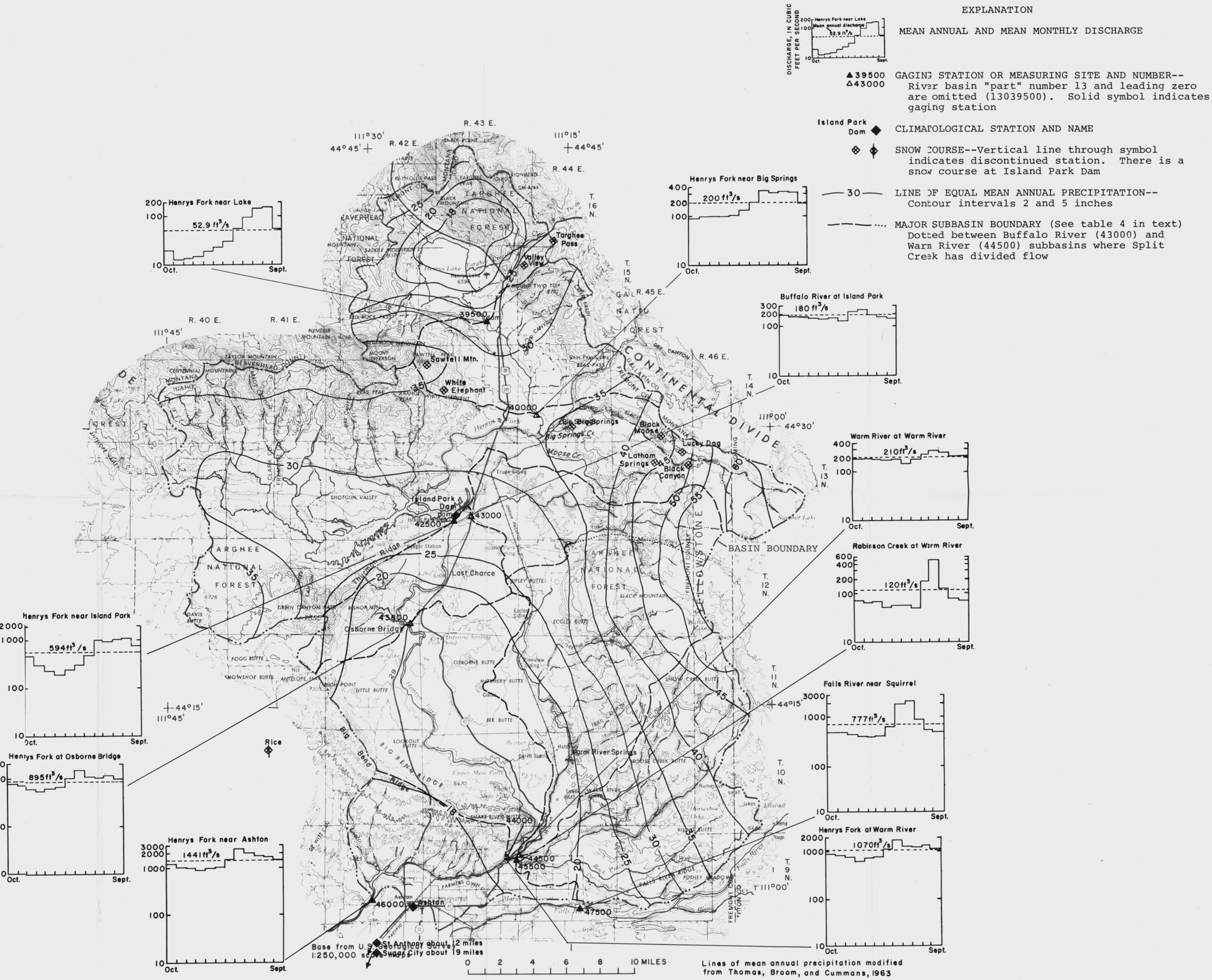


FIGURE 10.--STREAMFLOW CHARACTERISTICS AND MEAN ANNUAL PRECIPITATION IN THE UPPER HENRYS FORK BASIN

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
IDAHO DEPARTMENT OF WATER RESOURCES

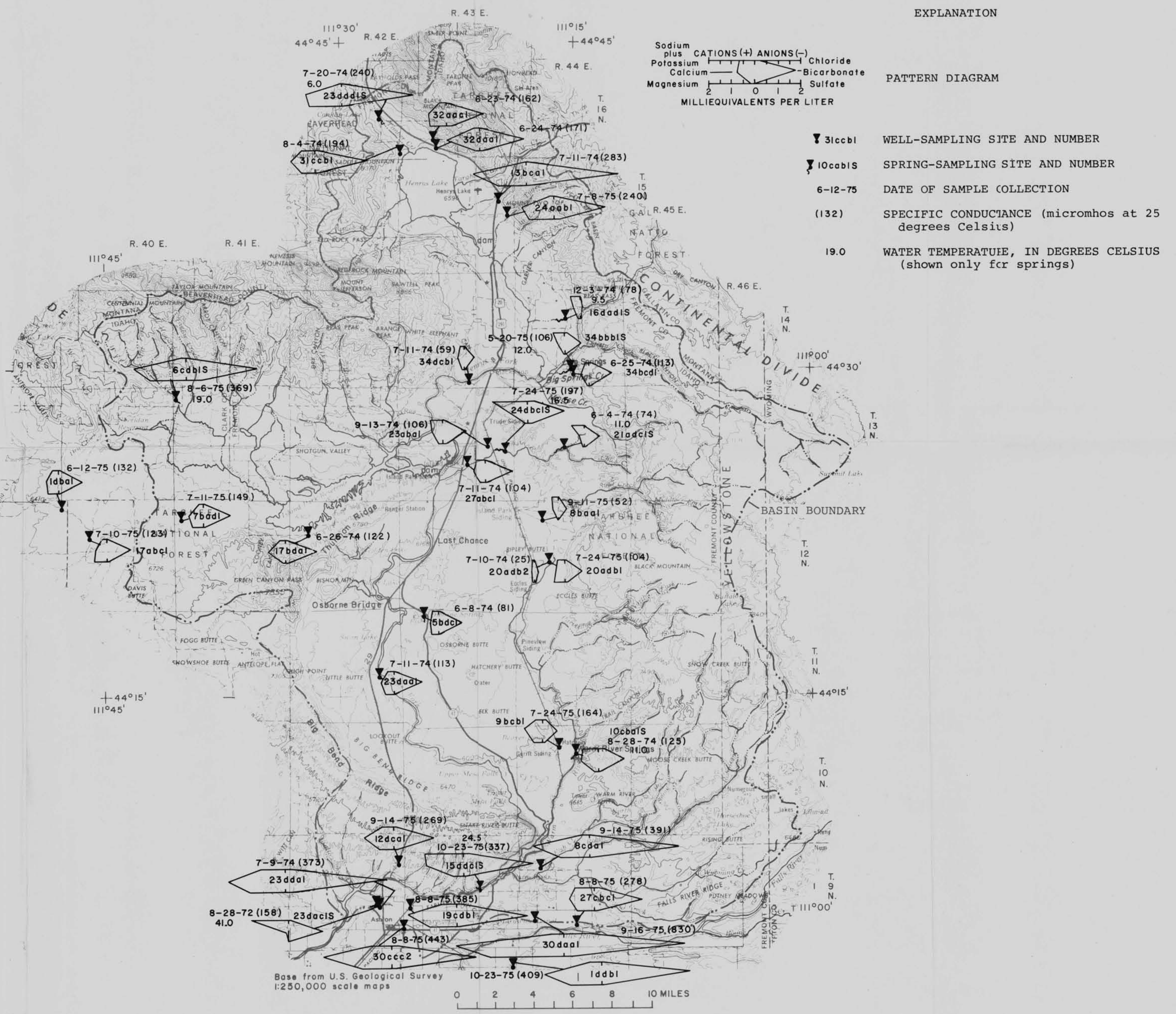
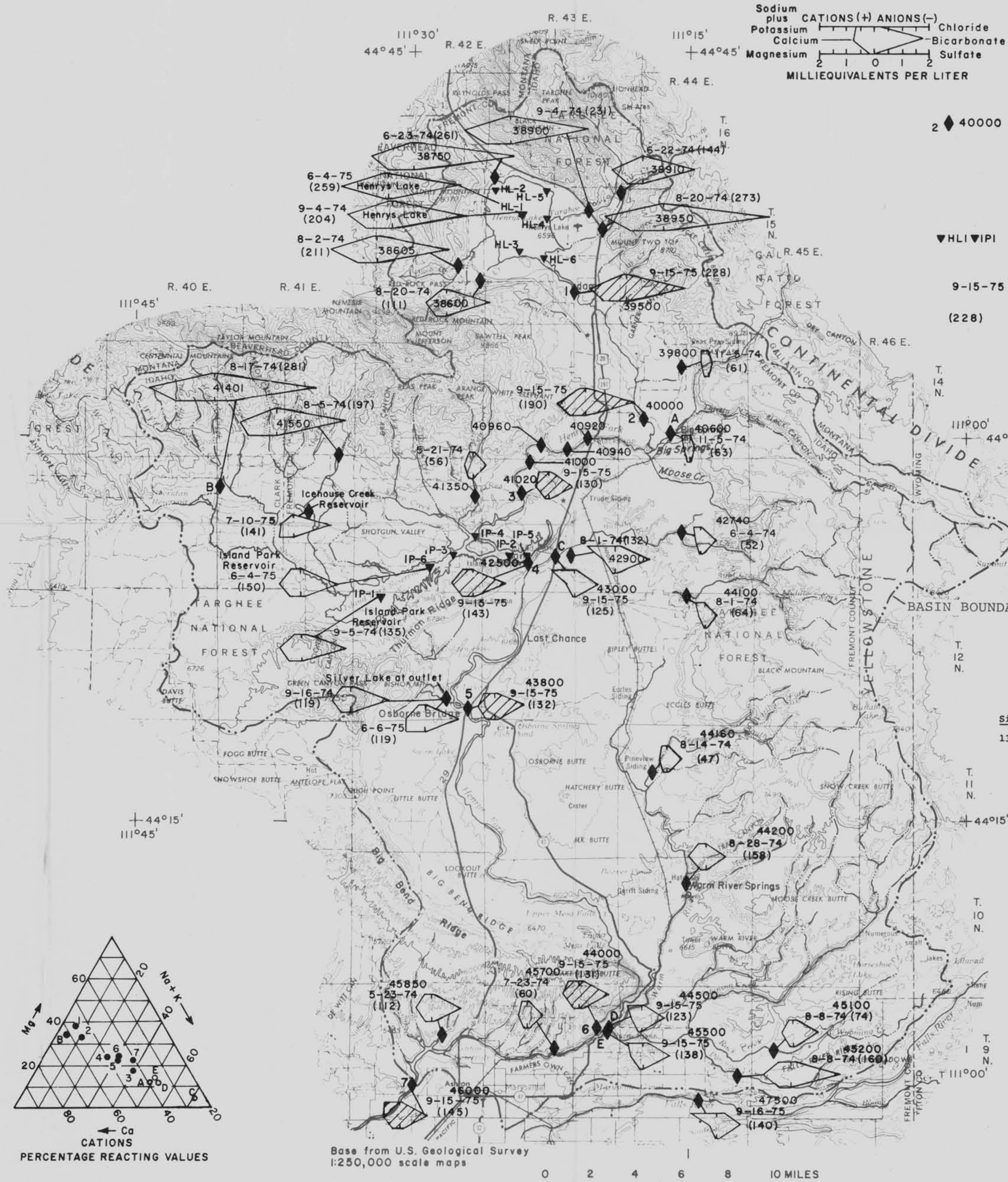


FIGURE 14.--GROUND-WATER QUALITY AT SELECTED SITES IN THE UPPER HENRYS FORK BASIN



EXPLANATION

PATTERN DIAGRAM--Henrys Fork sampling sites indicated by hatchured diagrams

2 ◆ 40000 STREAM-SAMPLING SITE AND LOCATION NUMBER (40000)--The river basin "part" number 13 and leading zerc are omitted (13040000). For site name, see basic-data table B in text. Numbers 1-7 or letters A-E shown by some symbols correspond to points on the trilinear diagram

▼HL1 ▼IP1 HENRYS LAKE (HL) OR ISLAND PARK RESERVOIR (IP) SAMPLING SITE AND NUMBER

9-15-75 DATE OF SAMPLE COLLECTION

(228) SPECIFIC CONDUCTANCE (micromhos at 25 degrees Celsius)

CONCENTRATIOI AND RATIOS OF FC (FECAL COLIFORM) AND FS (FECAL STREPTOCOCCU!) BACTERIA AT SELECTED SITES, JULY 22-23, 1975

(Concentration in number (f bacteria per 100 mL of sample; refer to text for explanation of ratios)

Site number	Site ıame	FC	FS	FC/FS	Date	Time
13039500	Henrys Fork near Lake	6	0	-	07-22-75	1240
40000	Henrys Fork near Big Sjrings	65	60	1.1	07-22-75	1510
40920	Henrys Fork at Flat Ro(k Campground	320	-	-	07-23-75	1700
40940	Henrys Fork at upper C(ffee Pot Campground	220	-	-	07-23-75	1710
40960	Henrys Fork above Coff(e Pot Rapids	47	20	2.3	07-23-75	1720
41000	Henrys Fork at Coffee lot Rapids	88	-	-	07-23-75	1250
41020	Henrys Fork above reseıvoir	40	20	2.0	07-22-75	2100
42500	Henrys Fork near Islanc Park	0	8	-	07-22-75	1700
43000	Buffalo River at Islanc Park	34	20	1.7	07-22-75	1730
43800	Henrys Fork at Osborne Bridge	160	120	1.3	07-23-75	1300
44000	Henrys Fork at Warm Riıer	9	10	.90	07-23-75	1540
44500	Warm River at Warm Riv(r	2	5	.40	07-23-75	1600
45500	Robinson Creek at Warm River	4	20	.20	07-23-75	1630
46000	Henrys Fork near Ashtoı	25	70	.36	07-23-75	1800

FIGURE 15.--SURFACE-WATER QUALITY AT SELECTED SITES IN THE UPPER HENRYS FORK BASIN